April 1997

BOARDWATCH MAGAZINE

Guide to Internet Acces ' Wide Web

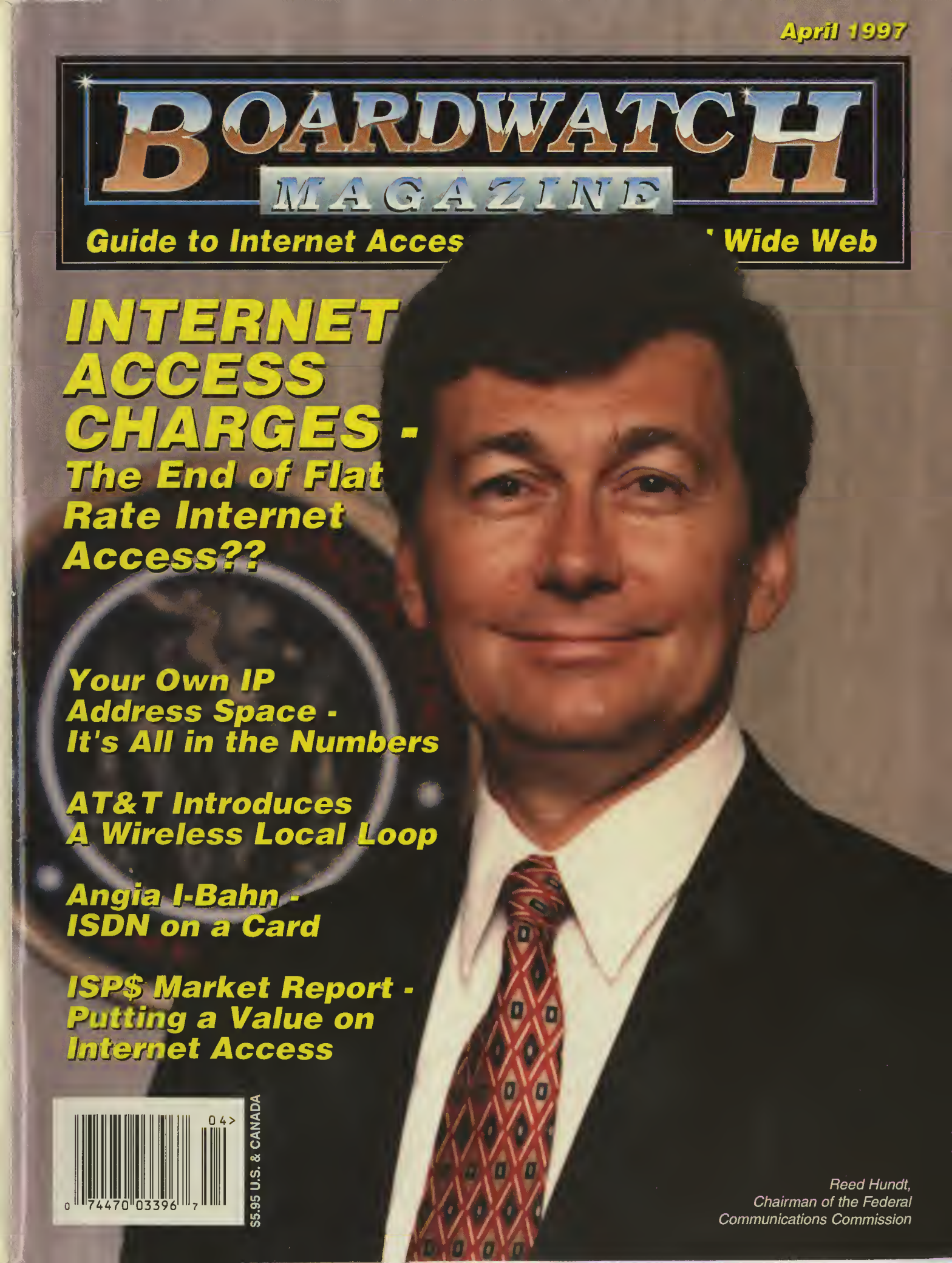
INTERNET ACCESS CHARGES - The End of Flat Rate Internet Access??

Your Own IP Address Space - It's All in the Numbers

AT&T Introduces A Wireless Local Loop

Angia I-Bahn - ISDN on a Card

ISP$ Market Report - Putting a Value on Internet Access



Reed Hundt, Chairman of the Federal Communications Commission

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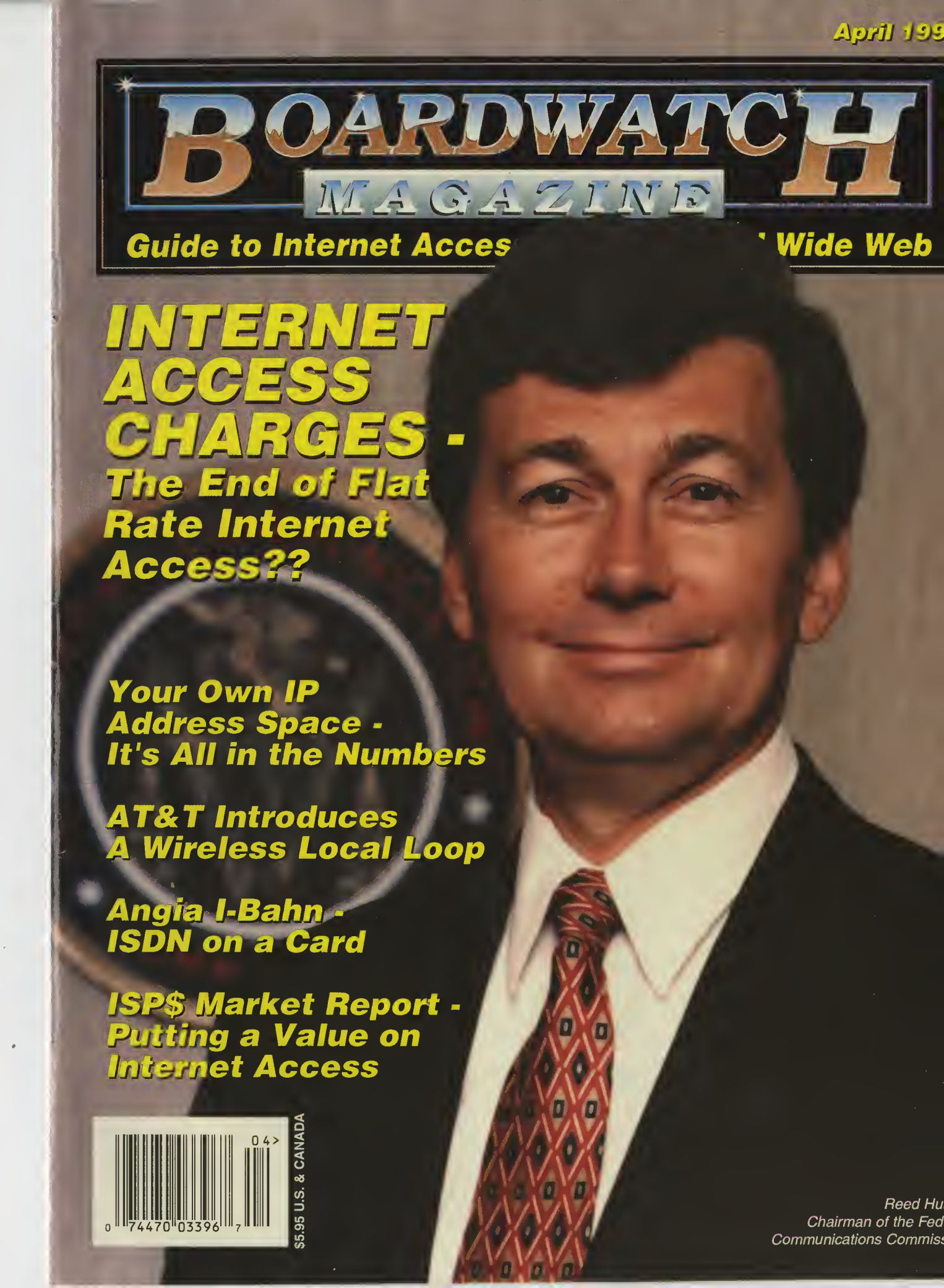

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Reed Hu
Chairman of the Fed
Communications Commiss

THERE ARE ENOUGH COMPLEXITIES IN LIFE. CONNECTING TO THE INTERNET SHOULDN'T BE ONE OF THEM.

Creating an Internet presence can be a frustrating experience, even for the expert. Beyond the web server there are routers to make the connections, FTP to move the files, and e-mail servers to give your mail a home. And don't forget Domain Name Servers that are required so the world can know your name. Even after you gather all the pieces, you still have to integrate them. And the costs, in time and money, can be staggering. But now there is an easier way.

THE INTERNET PRESENCE IN A BOX

The Internet Protocol Adapter (IPAD) is the only product that fully integrates a router, terminal server, and core Internet services (WWW, DNS, FTP, e-mail) into a single device. With all the necessary internal and external connections, Domain Name Service, and other required functions, IPAD includes everything needed to easily establish a complete Internet presence. In fact, it's so complete, you can add remote access by simply plugging in modems and dialing in with any Internet compatible computer.

BUILT WITH PERFORMANCE AND DURABILITY IN MIND

The IPAD's capability is housed in a rack-mount chassis of battle-ready construction. Its custom software, optimized for the Pentium processor, yields an unprecedented combination of performance and durability that you can never get from a general purpose operating system. The IPAD may be easy to use, but it's no toy.

	IPAD	Windows NT
Computer Hardware for Server CPU	Comparable performance	166 Mhz Pentium, 2 GIG SCSI Disk, Ethernet, Caching Controller 96 MB RAM, $3500
	$7465	
Router Software	Included	$1800
Configuration Time	Pre-configured	1-3 hrs
Configuration Cost	–	$70 Avg
Sub Total	–	$1870
System Software O/S	Included	$895
Configuration Time	Pre-configured	5-30 hrs
Configuration Cost	–	$615 Avg
Sub Total	–	$1510
Web Server	Included	Included
Configuration Time	Pre-configured	3-25 hrs
Configuration Cost	–	$490 Avg
Sub Total	–	$490
FTP Server	Included	Included
Configuration Time	Pre-configured	1-2 hrs
Configuration Cost	–	$50 Avg
Sub Total	–	$50
DNS Server	Included	$495
Configuration Time	Pre-configured	5-80 hrs
Configuration Cost	–	$1600 Avg
Sub Total	–	$2095
E-Mail Server	Included	$580
Configuration Time	Pre-configured	10-100 hrs
Configuration Cost	–	$1900 Avg
Sub Total	–	$2480
Support Costs Per Year	$795 Includes Hardware and Software Protection	$2100 No Hardware or Software Protection
Number of Vendors	1	5
Total Cost	$8260	$13,600
Time from receipt to fully operational site	2 Days	120 Days

PLUG 'N PLAY AND WALK AWAY

Many products claim to be easy to use, but the proof is in the time you spend getting it up and running. With other products you have to learn *everything* before you can do *anything*, and with the Internet there's a lot to learn. Only the IPAD allows you to get started immediately, and learn as you go. eSoft pre-configures the IPAD even down to your IP addresses and domain name, so it's no wonder that Information Week said of the IPAD *"from box to working system in two hours even with mistakes."*

And this ease of use doesn't stop there. With an IPAD even those who don't have formal training can confidently grow and maintain their own network.

AND IT CAN EVEN DO YOUR BILLING

The IPAD has been the foundation for many successful startup ISPs. With the addition of the IPAD Complete Billing Manager (ICBM), account management, credit card charging and invoice generation are automated. Spend your time building your business instead of wondering where your business is.

GO WITH A WINNER!

Infoworld Magazine said *"The IPAD represents an elegant solution when you need to easily build an Internet or Intranet presence. Considering the time it saves you, the price represents a good value."* In 1995 John C. Dvorak gave the IPAD his PC Telecommunications Excellence Award because he recognized the IPAD advantage.

CALL 303-699-6565 FOR OUR SPECIAL OFFER

Buy an IPAD by May 31st, and if you mention this ad you will receive a free one year support policy, a $795 value.

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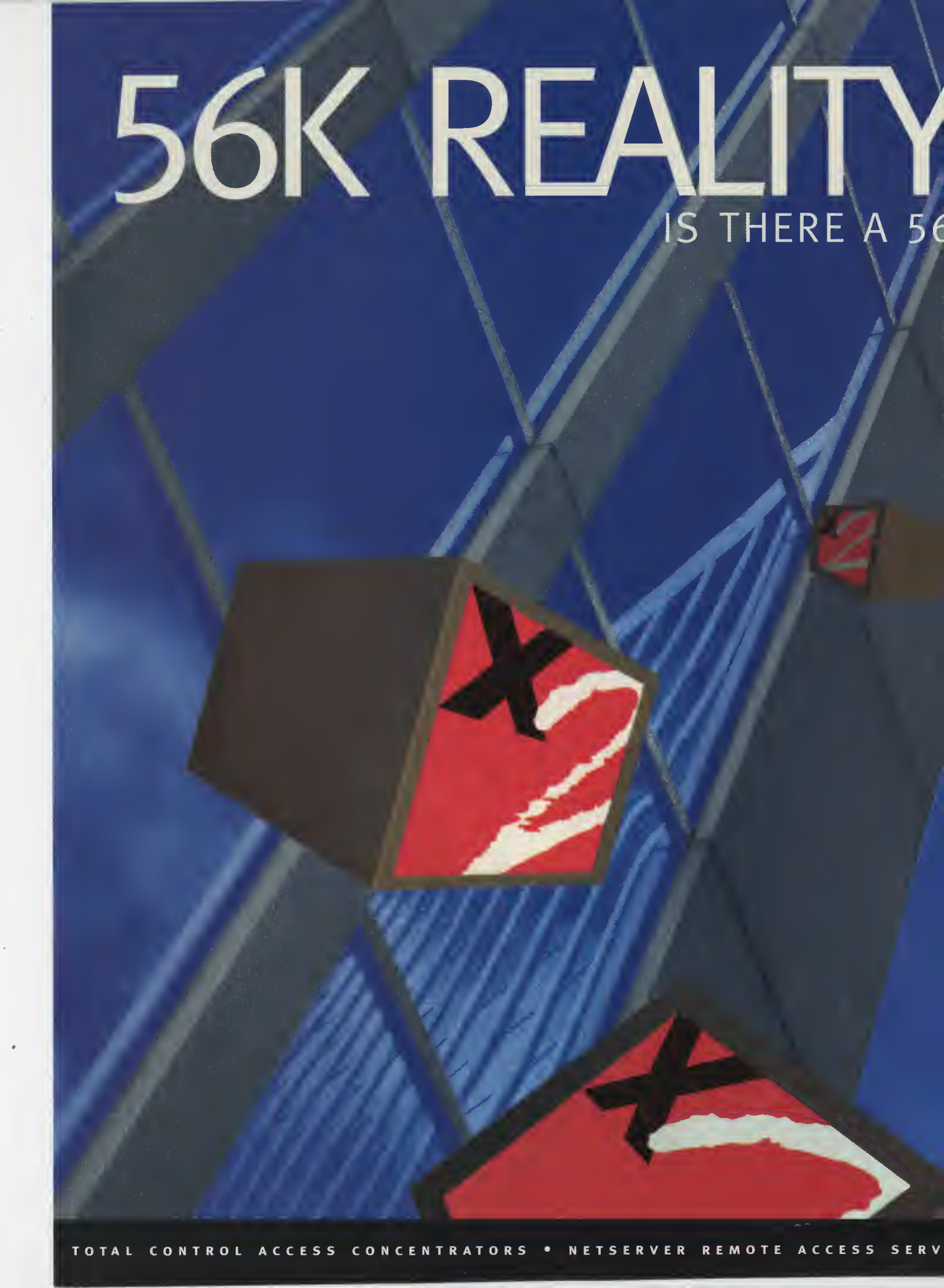
56K REALITY
IS THERE A 56
TOTAL CONTROL ACCESS CONCENTRATORS • NETSERVER REMOTE ACCESS SERV

x 2 TECHNOLOGY

XTRA

Volume 1, Number 4

Independent surveys show users would rather switch than wait

Results from Millwood Brown International, an Independent Marketing Research Firm

In a recent random telephone survey of over 500 online households, 62% of the respondents who indicated that they are "Definitely" or "Probably" planning to purchase a 56 Kbps* modem within the next six months claimed that they would be likely to switch to another Internet Provider if their current ISP does not have 56 Kbps* technology.

These results add up to an obvious conclusion: users want 56 Kbps* downloads now. And U.S. Robotics is shipping x2™ Technology now. Since U.S. Robotics has the leading worldwide modem market-share, it would probably be wise for you to invest in your business by investing in x2 – NOW.

Survey indicates unparalleled ISP support for x2 Technology

The results of Boardwatch's ISP Survey are in! Over 3,600 ISPs were surveyed. Following are some survey highlights:

ISPs offering 56 Kbps* service plan to use U.S. Robotics technology more than any other

The 56 Kbps* technology ISPs will be using:

U.S. Robotics x2 Technology	**76.99%**
Rockwell K56Plus	20.8%
Lucent V.Flex2	5.31%
Will support ALL	1.99%

452 ISPs responded to this survey

ISPs use U.S. Robotics modems more than any other

The modem equipment ISPs use:

U.S. Robotics	**61.81%**
Microcom	17.40%
Hayes	15.10%
Multitech	12.55%
Motorola	12.21%
Supra/Diamond	9.95%
Cardinal	8.14%
Practical Peripherals	7.16%
Computone	2.16%
ZyXEL	1.96%
Telebit	1.86%

2040 ISPs responded to this survey

The x2 Xtreme Advantage Program:

THE TIME IS NOW

x2 is shipping, so don't be left behind. ISPs worldwide are taking part in x2 Xtreme Advantage, a special program exclusively for ISPs. x2 Xtreme Advantage offers ISPs the opportunity to reach the millions of Courier,™ Sportster,® and Megahertz® modem users accessing the Internet with x2/56 Kbps* downloads.

The best competitive advantages for ISPs, including:

- access to millions of subscribers who use U.S. Robotics modems
- enhanced visibility through U.S. Robotics marketing programs
- inclusion in the U.S. Robotics *Connections CD* that ships with every Sportster and Courier modem
- opportunities to capitalize on the heavily-marketed x2 Technology
- listing of your service on the U.S. Robotics worldwide web site – reach millions of people who are interested in getting downloads on the Internet at up to 56 Kbps.*

Register today

Become eligible for the x2 Xtreme Advantage program by using U.S. Robotics x2 remote access and/or modem pool products at your POP locations. Then simply fill out the registration form that's available at **www.usr.com/x2**, or by calling **1.800.877.7533**, ext. **6739**.

Request your free copy of x2: THE GAME on CD ROM. You could win a free x2 Courier™ V.Everything® modem.

www.usr.com/x2

US Robotics®

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Guide to Internet Access and the World Wide Web

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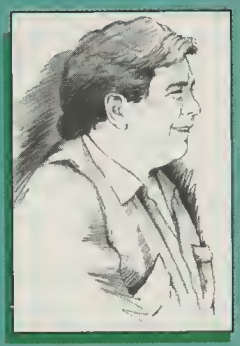

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EDITOR'S NOTES

by Jack Rickard

A BIRD IN THE HEDGE...

The 56 Kbps battle has taken some interesting turns—in all ways toward ever murkier waters.

US Robotics began shipping x2 modems on February 24th. On the retail side, it's pretty impressive. We've eschewed most of the reports and just gone shopping instead. Visiting about a dozen CompUSA, Circuit City, OfficeMax, and similar stores in the Denver and San Francisco areas, the US Robotics presence has been pretty impressive. Typically 12 feet of modem space with about nine feet devoted to an almost Roman square of USR products, with about 3 feet of jumbled pile labeled "other modems." US Robotics is simply overpowering on the point of sale display front in any event, and they are currently the only ones selling products. Are they selling? It's a little early to tell. But getting chatty with the ever knowledgeable geniuses on the store floor indicates that they believe so.

On the ISP front US Robotics continues to announce ISPs that are supporting x2. This is almost unfair. If you use US Robotics remote access servers, it just isn't very hard to support. Install the software and make the claim. That's about it. But they have some of the larger ones like Prodigy, AOL, and Netcom, and the smaller ISPs are under some pressure to respond as well.

Rockwell has gone a different direction. They've really been the power behind a really rather amazing "consortium" of something called ***K56flex***. Virtually EVERYONE besides US Robotics and Cardinal has jumped on board this, and we've never seen so much joining and backslapping and carrying on over an agreement to gang up on US Robotics. But we don't quite understand the agreement, and it is rapidly becoming evident that nobody joining the agreement does either.

There have been so many new people come into the industry, that terms don't mean what they used to. The basis of the Rockwell/Lucent/Motorola/andeverybodyelse consortium is referred to as an INTEROPERABILITY agreement. To me, this implies a lower level of symmetry than, say, a COMPATIBILITY agreement. When things are compatible, they are generally considered, feature for feature, the same. The actual implementations might vary, but anything one can do, the other can do as well, and interactively with the first. They are interchangeable. When two modems are INTEROPERABLE, this generally implies a lower level of coupling—they can connect at some given speeds for some given purposes and interoperate. Each of them might do more, but at some basic given subset of features, they can connect.

Rockwell had a technology titled ***K56Plus***. Lucent Technologies had a technology titled ***V.Flex2***. We were well aware that they all agreed to INTEROPERATE, and a new pseudo-standard was born thereby ***K56flex***. Now we have it from Rockwell that there is no K56Plus, there is only K56flex and that EVERYONE will do K56flex and that everyone's features in the consortium will be shared as part of the K56flex consortium and simultaneously. Further, that V.flex2 will disappear on the Lucent end and their technology will also not only interoperate at the K56flex level, but in fact it will BE K56flex and only K56flex.

We have a little problem with the concept here. Multitech and Livingston have been mouthing concepts that would imply that Lucent Technologies chipset has some superior features. Most notably, Lucent may have a hush-hush algorithm loosely referred to as "level learning" that can get around the FCC Part 68 signal level power restrictions in the bundle and actually DO the full 56 Kbps without exceeding the signal level restrictions. This would be no mean feat. Further, the Lucent chipset purports to support a PCM upstream technology that allows higher speeds on the upstream channel from the subscriber to the Internet—some 40 Kbps instead of 33.6 Kbps. That would be significant. And optionally, the Lucent set would do a symmetrical 45 Kbps both ways—perhaps an advantage in some applications.

Rockwell is shipping chips that do not have those features. And they are chips that are NOT software upgradeable. And they insist there are NO feature differences between the Rockwell chipset K56flex and the Lucent K56flex. Everyone at Rockwell and Lucent are striving manfully to insist in forceful terms that they agree that they did agree. And they still agree. In response to pointed questions about what they have agreed to, and what is to be done about very specific features that modem users might be interested in, everyone becomes ponderously interested in their shoes and shirt sleeves and necktie adjustments. And obdurately, they insist they have an agreement. And EVERYBODY is part of the agreement except US Robotics. It's been agreed you see.

3COM, for example, is part of the agreement. But they have just announced ANOTHER agreement. This agreement is to purchase US Robotics for about 6.6 frigging billion dollars. Immediately on announcement, a number of the smaller and more sidelined players in the modem and remote access markets, began giggling hysterically in relief and chanting that "x2 is dead, you've melted her, hail 3COM Dorothy, the witch is dead." Yes, we had two vendors actually giggle into the phone when describing how x2 now had to die because 3COM had already joined the K56flex consortium.

But unfortunately, Dorothy neglected to ask for the broom. Actually, it was pathetic. In the world of priorities, you have interoperability agreements, and you have $6.6 billion mergers. Those who can't figure this one out probably DO deserve to have their office furniture sold at auction. At best, 3COM has hedged their bets on both sides more securely than anyone possibly could. But it doesn't seriously look like the best is what will happen. The company appears gleeful at having acquired US Robotics and x2, and it is hopelessly naïve that they will now spike the x2 advantage just when they've got the bow off the box and are groping for the batteries. In any event, they get to play it anyway they want it. A super hedge...

Hayes Microcomputer Products is part of the consortium too. They've been a big purchaser of Rockwell chips in the past, but

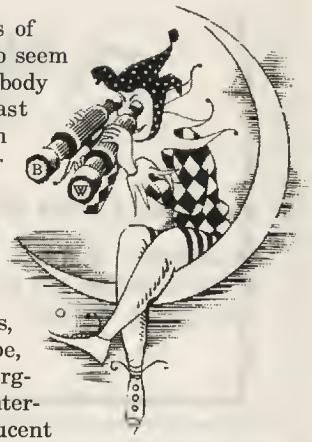
they've been leaning toward Lucent in this round. Hayes has some experience neither Rockwell nor Lucent has had. Hayes has been beaten by US Robotics so many times in the past that I think they've started to actually crave the taste of their own blood in their mouths. This is a battle that predates HST, predates ***Boardwatch***, predates most of the industry. Hayes has survived divorce, bankruptcy, HST, and a dozen other things. But certainly they have been battling bitterly with US Robotics since 1984 that I know about. You don't want to ever count these guys out, and they just keep coming back for more, quarter after quarter. I've grown to kind of admire them over the years just for the pugnacious tenacity of it. A kind of terminator mentality. They just keep coming, even when they should be dead. You can't kill these guys. The closest to come to achieving it was Dennis Hayes himself, and I understand he's actually given up trying to kill it and bought himself a new CEO to let him try his hand. Dennis is now chairman and doing deals. We love you big guy. Don't ever change.

Hayes has announced an upgrade plan where you can turn in ANY old modem of any speed, along with $99 ducats and get a shiny new 56 Kbps model. This has actually proven quite popular even before the event of their having a modem to ship. They have announced a March 24th ship date, a month precisely after US Robotics, and it rather looks like they might ship some. But as I said, these guys have scar tissue on top of their old scars. So they have found a way to get x2 technology from Texas Instruments, who makes the DSP chips for US Robotics. Under some sort of wacky back licensing deal, TI can offer x2 to Hayes. And Hayes is actually going to make some x2 modems under their Practical Peripherals subsidiary.

That would qualify as a hedge, but never mind that. They announced on March 13th that they are also going to buy 100% of Cardinal—at an undisclosed price. Cardinal is an interesting case. They started a few years ago making very cheap bargain basement modems that, unlike Zooms, more or less worked. In recent years, they've gotten to where they actually work pretty well, and they've stayed reasonably priced. The company has gained a little bit more market share each and every quarter to the point where they produce almost as many modems as Hayes—maybe 10% market share. And they're pretty good modems. But most recently, they were the ONLY modem manufacturer to throw in with US Robotics to license the x2 technology up front. So now Hayes, firmly in the Lucent K56flex camp that we think is K56flex only perhaps more so, now has TWO subsidiaries, Practical Peripherals and Cardinal, making x2 modems? A brazen hedge...

Cisco has made a pretty aggressive move into remote access servers with their AS5200 line. The company is so big they are having difficulties maintaining their growth curve. They have 6,000 products now and anything related that looks interesting they just buy. They are taking on Microsoft-like characteristics and probably for the same reasons. Doubling sales each year starts to get hard at about the 5 billion dollar level without absorbing every shiny thing in sight. But they have been strangely vague about when they are going to deliver K56flex upgrades—though the upgrades will be free. More or less this summer. Ostensibly, this is because they want a fully tested product before they ship anything. That is persuasively Cisco-like and laudable up to a point. They have the Mercedes-Benz position in most of the ISP equipment rooms, and it might be worth a few months just to avoid obvious boo-boos caused by installing chipsets that were, ahem..aggressively fielded. On the other hand, it might be a kind of gentle hedge...

I'll be right up front that I don't know what all this means. The ISPs have not declared one way or another persuasively, they're just sizing things up. US Robotics looks dominant on the shelf, but they were pretty dominant there before 56K came up, and within a week or so the other modems should start showing up on the shelves too. I do know the 3COM deal didn't kill x2, and Hayes is a respected player with many seasons of modem fashions under their belts, who seem peculiarly averse to declaring for anybody yet either. They want to make fast modems, and I'm under the impression they'll make one out of a weedwhacker if you'll show them how to first start the little gasoline engine and then how to modulate it. That buzzing noise can always be declared a feature.



But it does seem that the 56K waters, rather than clarifying as I would hope, seem to be growing murkier. These mergers and acquisitions are profoundly interesting, and a bit confusing. I think Lucent probably has the best technology at this point, and that does not historically bode well for it being the one that wins. US Robotics has the best marketing machine top to bottom, and now 3COM, who really did need a dance partner at this end of the industry, in bed with them. Rockwell would just still like to be in the chip business when this is over, and it is probably worth noting that our current luxury of $200 fast modems instead of $1,200 fast modems has largely been the work of their hands. Motorola and Lucent both seem quite willing to sue US Robotics if x2 appears to win the battle. Consumers are likely to be both confused and ecstatic, and ISPs are likely to be mostly confused—for most of the rest of the year.

Once upon a time, a little bird flew north for the winter. There's a problem here, and the erstwhile, but confused little bird started to grow colder as he flew. Soon he was truly flying through a confusing blizzard ice storm. Ice built up on his wings, and he fell frozen to the ground. A cow happened by and dumped cow stuff on the little bird, as cows are wont to do. The warm steamy pile of manure, though smelly, melted the ice and began to thaw the little bird. Happy just to be alive, the little bird began to tweet joyously at his turn of fortune. Hearing the tweet, a fox happened by, carefully scraped the manure aside, and promptly ate the little bird.

From this we learn that traditions, such as flying SOUTH for the winter, do have basis. Not everyone that dumps manure on you is really your enemy. And not everyone that pulls you out of a pile of manure is precisely your friend. And when warm and happy in a pile of manure, it's advisable to keep your thoughts on the topic to yourself.

If you're still with me after the little parable, you're probably an Internet service provider. We think xDSL will be a big story this year. XDSL products require a dry copper pair from the telephone company, usually a very modestly price service but not terribly common in the past. They used to be used by alarm companies. We're trying to amass a chart of all 50 states listing the magic words you say to a telephone company to actually get an unloaded, unconditioned, 2-wire dry copper pair. The telcos are being very recalcitrant about actually selling these unless you know the magic words. A number of you have already researched this in your areas. If you could drop me an e-mail indicating the area, the magic word name, the tariff number if you have it, the installation charge you were quoted, and the total monthly recurring cost for the loop from ISP to CO and from CO to customer, we'll pool all this information and publish it. I'll even go first. US West, Colorado, it's called an LAD line, we were quoted **$261** install and **$13.28** for each loop for a total monthly recurring charge of **$26.56**. This was for a total length of 19,400 feet. Send yours to **jack.rickard@boardwatch.com**. Pass the word....

Jack Rickard
Editor Rotundus.

Letters to the Editor

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LETTERS TO THE EDITOR

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56 KBPS MODEMS

Jack,

Just wanted to let you know that I really enjoyed your definitive masterpiece on 56kbps modems. As so frequently happens with your magazine I found myself hoping the article would never end.

Also, thanks for bringing back Doug Shaker.

As always, I wish you and your staff continued success.

Dale Hempen
Englewood, CO

Thanks for writing Dale. I too am very pleased Doug is back. His writing is just very very good.

As to the article on 56 Kbps modems, rest assured that it DIDN'T end. We just had to cut it off at that point in our January issue. I rather think this story will continue to unfold throughout the year.

Regards;

Jack Rickard

◆◆◆

Hi Jack,

I really enjoyed reading your on-target evaluation of the current "conventional wisdom" regarding the demise of the small scale ISP. We are of a mind on this particular issue. There is another issue which is being similarly artificially hyped that I would like to see you address. This is the current inflated discussion of "Internet Push" and the resulting "demise of the Web" (note the cover of this month's "Wired" magazine). I believe this is a thinly veiled effort by business interests to turn the Internet into an endless stream of commercials. Our Internet business got it's start as a two line BBS in Tampa (remember Roboboard? *G*). Through the years I've found ***Boardwatch*** to be THE definitive Internet magazine, particularly for those of us with a technological bent. Thank you for this fine publication. As a published author ("Unix Security for the Organization", SAMS, 1994) and Internet entrepreneur I would welcome an opportunity to contribute to the publication, and thereby to our online universe.

Regards,

Rich Bryant
Owner, Business Technologies
rbb@iseek.com
http://iseek.com/

Rich:

I'm seeing no shortage of commercials now. But I confess I am a bit of a Pointcast network addict. And I think there is room for development there. The death of the web? I'm guessing not. But I can see a lot of information including news, weather, stocks, and so forth coming via similar avenues. I don't, for example, get on the Wall Street Journal web site often at all, but if they had a Pointcast network version, I believe I would have to have it, and at almost any price. So I think these new channels have a lot of interesting points. On the other hand, they are terribly inefficient, and spew an awful lot of data about the globe that never gets quite read.

We are more or less always looking for new columnists. A wish list:

A kick butt e-mail column. Add-ons, tips, techniques, advances, just on the e-mail side. We'll call it "Stupid E-mail Tricks"

A backbone gossip column. Who's building what as far as new backbones. Who broke theirs. Who's buying who. New hardware advances for backbone building. Who's finally got a new black helicopter. Call it "Dedicated Access" or "IP — Bone Home". More overseas stuff. There's a lot happening all over the world. I can't begin to keep up with it. Pick your favorite continent, and do us a monthly column on what's happening there.

Jack Rickard

◆◆◆

I'm curious at your statement in the Feb letters section that "blacklists on the other hand, almost definitely are illegal". I'm under the impression that AOL got a ruling exactly the opposite of that in a recent court case. Meanwhile, those who maintain a list stating that such-and-such ISP tolerates spammers ought to be safe from libel suits given that 'truth is an absolute defense', if the statement is in fact true. And if I choose to use one or more blacklists (even the widely published AOL list) as a filtering mechanism on a listserv I own, I don't see where a law is being broken (though the size of my filter might break something). I am not, after all, a government, so I'm not violating anyone's first amendment rights by rejecting their mail. After all, what is a usenet killfile if it's not a privately-maintained blacklist?

Incidentally, while your other statement concerning the legality of spam may be true now, our own state of Colorado may be changing the playing field. There is a bill scheduled for legislative committee on Monday, Feb 10 which may require spanners to maintain and honor a don't contact list. It may not survive committee, and it doesn't have anywhere near enough teeth for my liking (I'd like spammers to fall under the provisions of the Colorado 'make my day' law), but it's a start.

BTW - Great column on the 'death' of the small ISP. I don't buy Computerworld's projections either.

Charles Oriez
coriez@netone.com
Charles:

Sounds like an invitation to net lawyering. I'm going to refer you to qualified legal counsel on this one. There are no end of legal theories that sound good online. But my experience has been that they stray somewhat widely from current law.

In going through just the pile for this letters to the editor, I'm just cowered by everything from an enormous treatise on why I should write my congressmen to help save the American Bison, an update on some Israeli's tunneling under the Rock of the Dome and starting WWIII here soon (again it had to be 30 pages), dozens of ways to make money, and so on to the point that it is discouraging.

But I am only inconvenienced and harassed by spam — if at times to the point of tears. You guys that are going to "fix it" for me are REALLY scary. At NANOG a week or so ago, I listened to Paul Vixie announce a "Vixie Switch" for the Internet you would undoubtedly just love. It can make parts of the entire network wink out based on Vixie's current spamwrath, mood, or equipment room malfunction.

Jack Rickard

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BOARDWATCH DIRECTORY OF ISPS

Reference is made to the above mentioned article where you indicate that ISPs connect to MCI, Sprint, UUNET, and other backbone providers. There is no mention of AT&T. I would think they would be a major backbone provider.

Please respond why they were not listed.

Thanks.
Joe Perlman
Joseph_Perlman@msn.com

Joe:

They weren't listed because they are not a major backbone provider — despite what you would think. They do offer dial-up services, and have extensive contracts with BBN Planet among others to provide their backbone services.

Actually, I rather suspect they do have some backbone design activity going on. There's an awful lot of ATM switch equipment disappearing into that maw. But as of yet, they have not announced any backbone, or backbone services.

Jack Rickard

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REGARDING "I PASS"

Hi Jack,

We've talked to them. They proposed to sell us dial time for $1.60 an hour, and buy it for $1.00.

Where I come from that's a gross margin of 60% — pretty darn good for handling two SQL fetches and one store operation.

Needless to say, we "passed". But we're working on a much cheaper, and more rationally-priced, solution.

Stay tuned.

Karl Denninger
karl@MCS.Net

Karl:

Got me again. I spoke with the president of IPASS for over an hour. I asked him seven times about this. In each case, he was emphatic that they do negotiate these on a case by case basis, but in no case does the markup exceed 15%.

He got his story. And now he's hawking 60% all over the net. Yes, I would pass too. And he will fail as a result.

This happens to me a lot if you can believe it. We do a story on some small outfit with an idea. They get about a dozen calls in response to the story. And they double the price now that they have their "hit." It is pathetic because it isn't the way to build a business, and they've no idea how vaporish the fifteen minutes of fame is. But we do run into them.

Jack Rickard

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WINDOWS95 & DUN — AN ISP'S VIEW

Hello, I have found your magazine very insightful, however, I have not seen any articles about how painful Win95's setup process is for connecting to ISPs for novices. I have talked with many other ISPs and the only way to get people online is to send them a 5 page packet and have them walk through it step-by-step adding in Windows95's TCP/IP, setting it up, then adding the Dial-Up Networking icon for the provider. As a provider, almost 90% of our calls are from people who find this task too daunting to even try.

I wonder if you could offer some help of what us ISPs can do? I have not seen ANY utilities out there that will automatically install this all... I have tried playing around with INF files, with some MicroSoft tech guys, but it even stumps them! Did MicroSoft make this hard on purpose? Life would be so much easier for us if our customers did not have to go through this painful process. The best I've done is create a custom setup disk with Delphi Developer that installs certain programs, but does nothing to add the DUN components..

Is it even possible?

Philip J. Varner
philip@inxpress.net
Internet Expressway
Madison, WI

Philip:

Microsoft Windows95 was released August 24, 1995. In our November 1995 issue, we published the longest tutorial we'd ever written. It has since been republished in our directory four consecutive issues and has been the most often requested reprint in ***Boardwatch*** *history. I am familiar with the difficulties new callers face.*

That said, we were pretty taken with the fact that TCP/IP was in there, and that everything was included to allow Windows95 connections to any Internet service provider — instead of some geeky proprietary thing to get onto Microsoft Network only.

In any event, I'm certain there's some way to install a Dial-Up Networking component without all of that. The problem is getting it to work on all installations. There are a lot of variables to a Windows95 installation. The problems go beyond just getting a connection up. A lot of ISPs have developed some pretty cunning stuff. But on some machines, because the Windows95 was a bit hosed up anyway, the install disk causes it to all come unraveled. Then the customer is

on the phone not just without a connection, but screaming bloody murder because their machine is now all hosed up from the software they tried to install. It can be a nightmare.

Jack Rickard

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DESSERT

Thanks for the generous helping of SPAM, but I'm now interested in the next item on the menu: Cookies. After downloading a ZD freeware called CookieMaster I'm now notified of attempts to "allow cookie to be set." Horrified would be a better word.

The persistence of web sites ranges from disinterest to downright demanding. What's the deal here? Are these notifications a sign of unwarranted invasion of my computer privacy or they are harmless byproduct of web browsing?

Inquiries minds need to know.
jbanman@orci.com

JBANMAN

I would go more for the harmless byproduct of web browsing myself. An invasion of computer privacy? I would guess it will not be perceived that way.

Cookies are mainly given to your web browser by a web site. Subsequently, you will cough your specific cookie on command. Let's describe for you how this works to your advantage on our web site in any event.

We put the full text of ***Boardwatch*** *on a WWW server. To my knowledge, we're still the only print magazine that does that without any coy reservations, teaser table of contents, etc. Full text, full graphics. We DO want to know who is accessing this data however. And we ask those seeking to read the book in a very up-front fashion for their name, address, e-mail, phone, etc. Unfortunately, while we always intend to then inundate them with direct mail street mail exhortations to subscribe, we never have gotten around to doing much of that.*

But in the process, we give them a logon name and password to logon to the service. In theory, each time they return to the site, they would "logon" after the old fashion online service, and access the text.

Cookies gave us a rather neat out on this. You come to our web site, cough your valuable info, and get a logon name and a password. Then you logon and read what you like. But a curious thing happens on your next visit. You don't even get the annoying logon screen. When you logged on the first time, we stashed a cookie in the cookie file on your browser. Each time we get a visitor, we ask them for their cookie. If they cough it, they get in directly to the web site without ever having to deal with the logon screen at all. If they don't, they must be new to the site, and we run them through the process.

The net result is that you don't have to logon after the first encounter. We know from the cookie that you've already been here. We already have your information — which if you recall we solicited in a very up-front fashion and you gave it up willingly at the time. But the cookie allows us to not plague you with this silly business again. It doesn't contain much as I recall — maybe the last time you were on, which we update each time. If you don't come back for six months you go away entirely from our system.

And really why are they on there? I myself don't want to go through the logon process twelve times a day to look at back issues of my own magazine. When I first encountered the cookie concept, Gary had to gen up a CGI so I didn't have to. Now you don't have to either.

I know of no method of getting cookies to spill anything private. They give us back precisely what we put in there. We could track how often you are on here I guess. If you consider that something you should keep private from us, then I suppose its an issue. And I suppose we could go cookie crazy and put a different one on every page to track which pages you could access. To me, this isn't much of a big deal because everyone always could do that sort of tracking on bulletin boards going back a million years. And I'm not sufficiently interested to crap up every page on our web site with unique cookie stuff.

Bottom line is that what cookies are generally used for is almost entirely benign and usually decrease the annoyance level to you the user. Like anything, I suppose they could be intentionally designed for abuse, but even the abuse leads to a pretty ho-hum/yawn result for most users.

That said, most of the browsers already have cookie alerts and flags to set so you won't accept a cookie.

Jack Rickard

WHOOOOOAAAAH! JACK

Jack,

Loved your Editor's Notes this issue I just received.

In a nutshell, you say exactly what I believe, and stand for with almost everything I own (my ISP business). American Spirit is alive and well, contrary to popular "big money" belief.

Now, let's see where we as ISPs stand in the next few years, I'm with you! As long as the telcos don't buy us out of business by lobbying FCC/Gov't et al...

Best Regards,

John Shafto
JWShafto@mato.com
John@shafto.org ::: N7YAO
http://www.mato.com
Altaire Enterprises, Inc. **(605) 578-1400**

Well, you've rather hit the weak spot John. When all else fails, telcos fall back on legislation, the FCC, and ultimately the courts to protect their holy right to own the business. And at that point all bets are off.

I'm very impressed with Reed Hundt and the FCC crowd these days. But the Congress and the Courts can indeed change the landscape and it is a very real danger I haven't even been putting into the equation.

Jack Rickard

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CHOOSING AN ISP

Jack,

I just visited your WWW site in hopes of gathering some info about choosing an ISP or WWW provider. Your image map mentions that you have this information but I couldn't find it. let me provide you with some background ...

I am an MIS professor who frequently receives calls from local small businesses that want a WWW presence. About the only thing these businesses have in common is that their proprietors know nothing about the Internet. It comes as quite a shock to them when they find that there is a lot more that needs to be done besides building a WWW page, such as choosing their provider.

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I have searched all over the Internet looking for the definitive look at the criteria used to choose a provider but have come up empty. ideally, a business should be handed a matrix. One axis would be a list of all of the criteria that go into choosing a provider. The other axis would be the providers. Underneath the matrix would be a list of the criteria, defined, with suggested optimal values for each criteria.

Unfortunately, to my knowledge, nothing even remotely this user-friendly exists. For the most part, the discussions about choosing a criteria are formatted like a term paper - no business person has time to read information in that format. Further, their criteria, of which there must be at least a couple dozen, are typically glossed over and condensed into 3-4 criteria, e.g., monthly charge, amount of disk space, speed of connection.

Surely a publication such as ***Boardwatch*** has done something along the lines of what I am looking for (or knows who has done it) so that I don't have to reinvent the wheel. Can you help?

Thanx

David J. Jankowski, Ph.D.
Assistant Professor of MIS
College of Business Administration
CSU, San Marcos
San Marcos, CA 92096-0001
(619) 750-4235
http://www.csusm.edu/public/jankowski/doctorj.html

The problem with the Matrix David is that the one axis listing the providers would now have 3640 entries. We've done the best we could with our Directory of Internet Service Providers. It's currently about 400 pages, lists 3640 ISPs, and 23 national backbones. If I could make it any simpler, I would. But we have a dictum here at ***Boardwatch*** *urging us all to make things as simple as possible, and no simpler.*

You can order the directory via the web.

Jack Rickard

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KUDOS AND SETTING UP COOLTALK .ICE FILES

Mr. Rickard,

First of all, kudos to ***Boardwatch***! (It never hurts to start off with a bit of flattery... :-))

Well, on to my problem...

I work part time at the University of Colorado, Denver's Modern Language Lab as an advisor and I'm setting up a lab chat page for the Language department (so students can chat with people in France, Germany etc.). (**http://132.194.41.159/** - but it's a test server so you won't find it running all the time) I've set up some NetMeeting stuff and now I'd like to set something up so that people can call in using CoolTalk (.ice files as per the article in the July '96 issue).

I've created an .ice file on the server...

[OpenDVE] invite=132.194.41.159

(All the machines in the lab, including the server, have unique IP addresses) and a link to it. I've set up CoolTalk etc. on another machine and every time I try to link to the .ice file from Netscape (which is correctly set up to deal with .ice files) it tries to download the file instead of connecting the two machines via CoolTalk.

I realize you probably receive millions of similar messages, but myself and the Faculty and students from the UCD language department would be most appreciative of any ideas (seeing as how the link to your .ice file works...).

Regards,

Dangerous Dave Bruzzone
dpabruzz@ouray.cudenver.edu
http://ouray.cudenver.edu/~dpabruzz/

Dangerous:

It's been awhile since we did that story, so I'm struggling here a bit. Check our May and July 1996 issues to confirm. Two problems arise with ICE files. First, the web server software has to be set up to deliver a new MIME file type — in this case ICE. Second is of course the application link in Netscape itself to connect ICE files to the CoolTalk application. As I recall, the "gotcha" on this one is the first case — the web server MIME type addition.

Jack Rickard

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BARE COPPER

Hey Jack,

In your latest issue of ***Boardwatch***, under one of the most valued columns within this great publication (Editor's Notes), you talk about xDSL. Being fond of new technology, and having a wonderful relationship with Ascend Communications, we have been gently nudged and prodded towards implementing this great new technology. If I read thing correctly, you mentioned that the current Colorado tariff on copper pairs is a meager $16.

I'm extremely interested in putting a solution of this nature together. Us, and several other ISPs in the area actually. Could you please give me some pointers on where to find more information on this subject?? US West, not surprisingly, is not letting ANY information out as far as leasing the Local Loop is concerned. We'd basically be direct competition, since we'd be doing everything the same, same hardware, same technology...but with a different price. (Lower. :)

Any info you have would be greatly appreciated. And any pointers to information I can gather myself would be helpful too. Thanks in advance.

And keep up the great work. (:

-= Jay =-

Jay Eno
sysop@scream.com
Network Engineer —
Cherry Creek Internet

Jay:

You're a scant "L" away from having a serious name problem.

We think xDSL is going to be a very big issue shortly. I'm currently working on a story on just this topic. But as you know and have undoubtedly come to expect, it can't be a garbled hash of press releases vaguely referring to a coming great day of more technobabble. So putting it together is a bit of work. We have to get smart on the technology—by playing with it—not by talking to PR people. And as you point out, the big issue is the copper.

Basically the DSL technologies are an outgrowth of a desire among telcos, if you will recall from a few years ago, to deliver video on de-mand over copper. High-bit rate Digital Subscriber Loop (HDSL), Asymmetric Digital Subscriber Loop (ADSL) Very high bit rate Digital Subscriber Loop (VDSL) and even more variants are currently lumped under the more generic xDSL term.

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Originating with Westel, but increasingly from a number of other companies such as Pairgain, devices, essentially modems, have been developed to pass data over bare copper lines at increasingly higher data rates. Initi-ally, these devices were very pricey (a couple of thousand dollars on each end), and could only span distances up to 5,000 feet. As such, the applications for this were pretty thin.

There have been a couple of things to alter the landscape very recently and in significant fashion we feel. First, ISDN has become more common, and the 2B1Q transceivers in them have become very common chip sets with lower prices. Several manufacturers have been able to develop circuits based on these relatively low cost components that will do fairly impressive data rates under the xDSL umbrella.

Second, the reach has grown. Fairly high data rates of 768 Kbps bi-directionally are now available on distances as far as 12,000 feet. And a company called Tutt Systems of Pleasant Hill California has developed a "rate adaptive" version that will do 768 Kbps up to 12,000 feet, and 384 Kbps up to 18,000 feet, and automatically select whichever speed works. Rockwell too has developed an 18,000 foot chipset for xDSL, and many manufacturers are developing xDSL cards based on this.

In the coming competitive access world of local telcos, they will indeed have to lease copper to competing companies at cost-based rates. What you have to do to qualify as a "competitor" is rather up in the air, what the rates will be is rather up in the air, and in fact the telcos are basically vowing to defy all law and democracy to protect what they consider "theirs" and not do it at all.

But at the same time, and from the same mouth, the telcos are trying to make the case that Internet access burdens the central office switches used for voice communications. And while literally all of their data and assumptions on this are COMICALLY flawed, self serving, and non-rigorous, they have drawn our attention to a basic problem. The marriage of a circuit switched voice telephone system designed in the late 1880s and not conceptually changed since then, and a packet switched data network "cloud" used for Internet communications today, is basically akin to an attempt to get a donkey and a goose to mate and spawn lovely, talented offspring. Moving to the future, it probably doesn't make sense.

xDSL would represent a move to a parallel data network quite separate from the switched circuit network. So we think it is important.

Let's get to today. Competitive local access is mighty fine sounding, but it isn't precisely here, and you're not precisely a competitive telco, and may not want to be. But virtually all telephone companies have existing tariffs for what is generically referred to as dry copper pairs. These were copper lines linking two locations, and were originally tariffed for alarm companies. As such, they may be called "alarm pairs", "signaling pairs" or just dry copper pairs. Interestingly, virtually all alarm systems today use ordinary telephone lines and modems—there are very few alarm systems left that use this bypass.

But the tariffs still exist. And so you can indeed have such lines instal-led—if you know the magic words. Since they haven't been used much in recent years, many in the telcos genuinely are unaware of their existence. Others in the telcos are hoping YOU are unaware of their existence. And US West in fact is introducing ADSL service in 14 states at about $175 per month—leaving a hole approximately large enough for you to drive a school bus full of Internauts through sideways.

We are working on this story as I write. I'm currently having a 19,400 foot link installed from our office to one of our houses, largely because it is at the extreme end of the range of the current technology. We have a March 20 install date. And we are working with vendors such as Tutt Systems, Aspen Internet, and others to learn the specific equipment quirks and foibles to be able to do this in detail.

But you have to know what to ask for. What you want is a two-wire dry copper pair, with NO loading coils on it at all, and no power on it at all. In US West territory, this is a LAD circuit. In Ameritech land it is a LADAC circuit. And we are working on a table listing the magic words you have to say to get these in all 50 states. As you know, we get conflicting information from telcos on sequential calls. The circuit we're putting in involves a $261 installation charge, and two loops at $13.28 each—one from our office to the CO site, and one from the house to the CO site, for a total cost of $26.56 per month. I'm hopeful that over this $26.56 monthly circuit, we can do about 384 Kbps now barely, and within a year 768 Kbps really. It will give us a good in-ground test loop if nothing else. We expect equipment costs for both ends of the line to run around $1,500 total, and within a year we should see this under a thousand dollars.

As an ISP, you will be able to connect some customers using this technology. But distance will still be a factor. Currently, the reach appears to be 18,000 feet. The distance from your ISP central site to the telco CO is part of that. And the distance from the telco CO to the customer is the other. Our office is slightly over 12,000 feet from the CO. My house is slightly over 7,000 feet. And that is a total of just over 19,000 feet. The line of site distance between your site and your customer is totally irrelevant and totally meaningless. Gary's house is slightly over 5,000 feet from our office. But the total loop distance there would be about 33,000 feet. Maybe next year.

Jack Rickard

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ISP & FCC ACCESS FEES

Dear Jack

In the Feb. issue (cyberworld monitor) it was stated that ISPs are not subject to the access charge. I have contacted S.W. Bell and requested the fees not be charged to me. They just laughed. Please send me or publish the ruling so I can fight the phone company. I have just now got them to send me the sales tax exemption. I have been paying sales tax on the modem lines for almost 2 years.

Keep up the good work. Yours is the only mag. written for ISPs. I look forward to each issue. Thanks for your time and magazine.

David Gower
`david@gower.net`

David:

The reason they laughed is that you're not paying access fees now. Perhaps some clarification of terms is in order.

In 1983, AT&T reached a settlement with the U.S. Department of Justice on a long standing series of anti-trust cases and was broken up into the original

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AT&T long distance company and seven Regional Bell Operating Companies (RBOC) serving as "local" telephone companies. This is casually known as the "Consent Decree" and the breakup as "divestiture." It went into effect 1 January, 1984.

Under the Consent Decree, long distance carriers would pay local telephone companies an "access fee" to originate or terminate a long distance call. The access fees are nominally 3.5 cents per message unit to the originating and receiving RBOCs. At the time, this was a relatively small cut of the 22 cents per minute or so then extant in long distance service. Today, it is the BULK of what you pay for long distance service.

Under the consent decree, a 24-month exemption to the access fee requirement was provided to "enhanced service providers"—mostly data services to encourage their continued development. This was supposed to expire on 1 January 1987. The FCC opened a docket for comments on actually implementing the "expiration" that was really already mandated by law. Bill Louden of the GEnie service, as I recall, first started a grass roots campaign to stop what he termed a "modem tax" that would have put a pretty serious squeeze on services such as GEnie, CompuServe, Delphi, The Source, etc. in those days. This modem tax description was a bit twisted I thought, but it did cause a lot of comments to the FCC, and the commission dropped the whole project pretty promptly.

Today, as an ISP, you are terminating long distance communications to the local subscriber, and in theory, you should probably be paying this 3.5 cents per minute local access fee to the local telephone company under the provisions of the original consent decree. But you most as-suredly are not at this point. The February article referred to a CURRENT initiative, entirely driven by increasingly desperate sounding local telephone companies, to again bring such services under access fees. Since the FCC is currently trying to implement the Telecommunications Act of 1996, and do away with access fees of all kinds anyway, this is doubly hysterical. But it is a serious initiative of the Bells, and the process must be observed.

It is even possible that it could happen. But the effect would simply be to end flat rate access services—and that probably temporarily, and THAT probably only for dial-up. So it makes no sense in any direction.

The basic problem from the top of the industry down is that the apparent economies of scale are in almost all cases diseconomies of scale. Large companies have a very difficult time seeing profit in $19.95 per month flat-rate services. As long as you offer them, they can't very well offer the same service at $79 per month and make a case that it represents a good value to their customers. And so basically they would like all 3,800 of you to go away somehow. You're really mucking up the whole communications gig here.

The more likely scenario is that at all levels communications will become competitive over the next five years, and the dinosaurs are simply "culturally" unable to adapt. It does not bode well for their future. Your model is actually closer to what is coming. But in answer to your question, you aren't paying access fees now, and I guess I think it's about a 70/30 that you won't.

I understand the FCC has received over 320,000 comments on the proposal now—essentially all of them against levying access fees on ISPs.

Jack Rickard

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HOLDING OUT

Hi Jack,

I held out til the end hoping for a deal on my subscription renewal. (I lost and mailed the full price last week) I hope I still get the "free" Directory of Internet service providers. (that would qualify as a "deal" I guess).

Anyway, I wanted to let you know that I was glad to see you back in "Editor's Notes". Mr. Hakala was very good, but there was a subtle difference, he just wasn't Jack.

I guess your stuck with me for another year, so keep up the good work!

Gary Binkley
Systems Operations Specialist
Kearsley Community Schools
http://`hs-nt.kearsley.k12.mi.us`
`binkleyg@rossini.lakeville.k12.mi.us`
http://`www.cris.com/~binkleyg`

Gary:

*We're pleased to have you back. We've experimented with a number of discount programs on **Boardwatch** renewals in the past few years. We get a pretty high renewal percentage as magazines go anyway, but of course we always seek to improve on that. But we have had difficulty measuring any significant differences in response between discounted offers and our standard offer—which doesn't encourage us strongly to discount.*

*Additionally, we have been fairly intent on tightening our readership focus in the last year, and for a certain type of nethead, the **$36** annual fee just doesn't seem to be much of an issue. If at some time during the year one of our articles doesn't either save you **$10,000** costs or lead you into **$10,000** of new business opportunity, you should probably be reading Internet World or some other "gee the Internet sure is cool" publication. The **$36** allows us to prove you care.*

*We have been running an offer of a free directory for both renewals and new subscriptions for some time. I guess I think that too has to end at some point since the size of the directory has increased to the point where the production costs, and probably even more significantly the postage costs have started to reach painful levels. But at **$9.95** plus **$4** s&h for the directory, that has become a pretty significant premium for a **$36** magazine subscription.*

Mr. Hakala is no longer with us. We have added TWO editors on staff, Steve Clark and Bill McCarthy and I'm very pleased on both counts. But it has become apparent to me over the past few months that I need to do less managing and more writing on some of the technical issues facing Internet service providers. And so I will do so.

Jack Rickard

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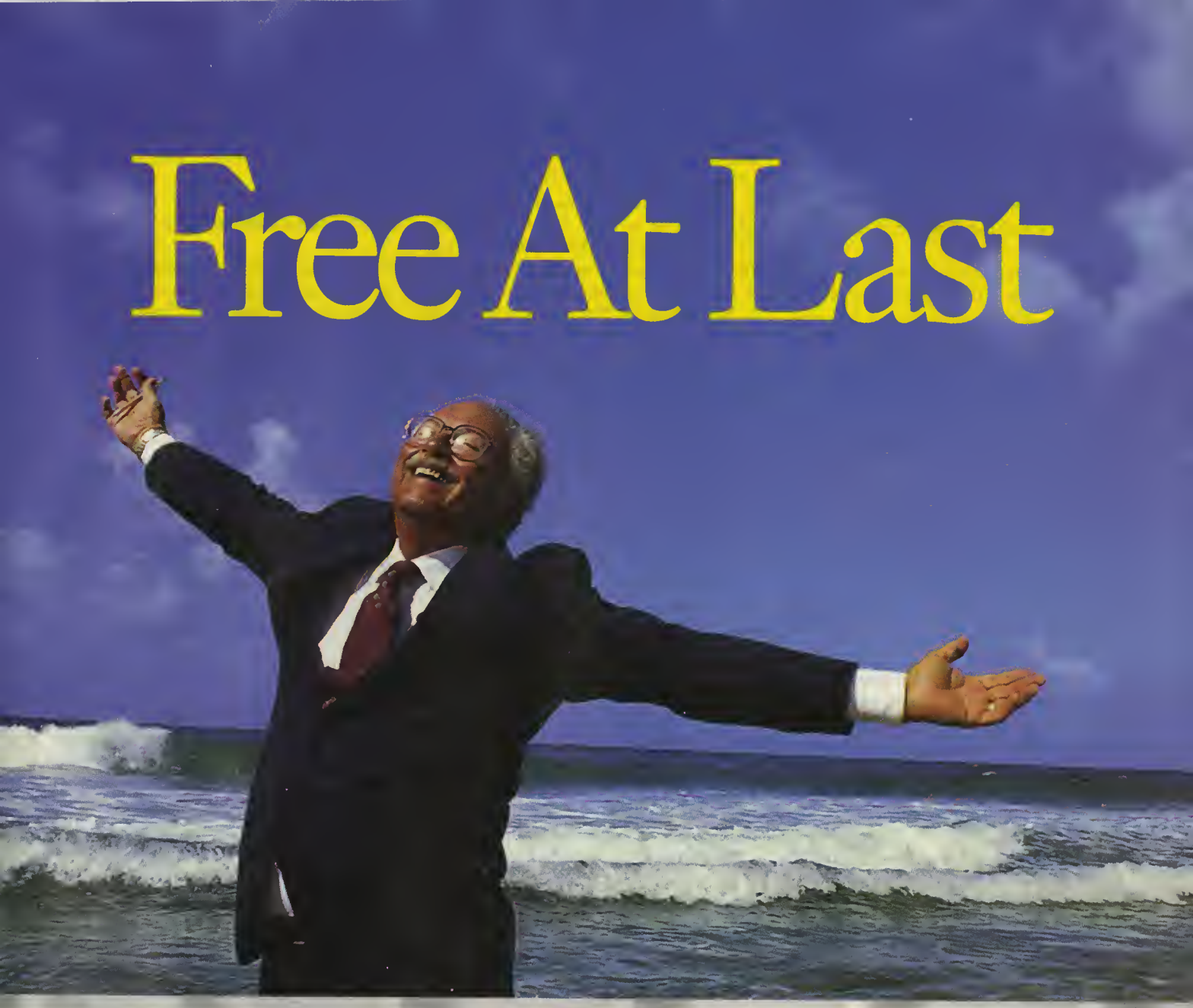
DON'T KNOW WHO TO ASK—EPIC FRUSTRATION!!

Dear Jack:

I just found an issue of your ISP Directory and wish I would have known about it sooner. I just started into website development in about January this year and I'm relatively new to Internet

Free At Last



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resources. I hope you can help, or offer suggestions of where I can get help, because my frustration level is reaching an all time high. I am computer literate and have a fairly good programming background. However, there is one thing that is generating rapid hair loss for me—the ISP/VirtualHost/Domain Name stuff.

I know that an InterNIC domain name registration is **$100** up front and **$50** each year after (no problem). My current service provider (who has been very good) tells me that after the **$100** fee, my monthly service fee will go up from **$24.95** to $99.95 so that I may have access to this domain name and all of the extras that go with this new account (on a non-secure server - **$150**/month on a secure server). That seems staggering to me. I've heard many people talking about only paying the standard ISP dial-up fee (about $19.95 to $29.95) and having their own domain name and I've even heard some claim to have it for free.

My partner and I have just started up a small, home-based business (two, actually) and we're just trying to get a fair shake on about 5 to 10M of disk space on a virtual host with a virtual domain name. Secure server would be nice but is not critical right now.

Is this **$99.95** an industry standard? If not, can you offer any suggestions of what is? Or where to go for help or FAQs on this matter? Thanks for your help.

Todd Berran
toddb@alice-compusystems.com

Todd:

*There are no such "industry standards" and in fact no standards at all. Almost anything goes. Generally, it is my observation that the **$19.95** type accounts typically are for dynamic IP address allocations on a standard dial-up account with an associated POP3 e-mail box/address. Some of these accounts do offer some web space—typically five or ten MB of space, but under a subdomain address within the Internet service provider domain.*

Usually, if you obtain your own domain name the price does go up. One factor in this is IP address space. An ISP will typically have a couple of Class C address blocks for their dial-up service where each time someone makes a connection to a dial-up port they are dynamically assigned the next available IP address out of the available addresses. These addresses are infinitely reusable. Once you register a domain name, it HAS to be associated with a fixed IP address, and typically you'll get your own Class C address block of some 255 IP addresses. Those then are gone from your ISPs use. Their domain name server would typically become the authoritative name server for your domain. You can run your own SMTP server if you like and make your own POP3 mailboxes ad infinitum. And of course, you can host any number of web services—even if they are "virtually" hosted on the ISP hardware.

Almost all ISPs move this into the "business" connectivity category. It is really quite different than the very basics provided with a dial-up account. And most businesses use the dial-up connection as more or less a standing connection—they dial-up the service and leave it "nailed up" or connected 24 hours a day. So the cost of the port, telephone line, and modem on the ISP end is no longer "shared" among ten customers, it is dedicated to a single customer. If this is the case with the account your ISP proposes for your use with your own domain name, it is indeed probably a bargain at $99. It is not unusual to see these accounts in the $125-$200 range. But they can do quite a bit more than you probably think you want to do right now.

But it is pretty rational. Basic service—basic price. More service—higher price. That said, it is a competitive business. If you can diagram fairly precisely ALL that you really need in an access account, it then isn't too difficult to compare several ISPs to see who gives the best bang for the buck in your direction. But I would find it extremely generous and unusual for an ISP to give you your own Class C address block and domain name registration for $24.95.

Jack Rickard

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WIDE AREA LOCAL PHONE NO'S

For several years, I have enjoyed (and have respect for) ***Boardwatch Magazine***. One of my favorite features (read first) is the "Letters to the Editor" section. You guys do a great job, but (being human) you do "drop the ball" on occasion. :) :)

Michael Muller was asking for advice (or comment) about the possibility of using a packet network (specifically Sprintnet) to provide remote users "local dial-up access" to reach his "Poets & Writers" BBS (NYC area).

Mr. Hakala's response (and I quote):

"I don't think private data networks such as Sprintnet (... stuff deleted ...) could do much for your situation. Typically, they charge hundreds of dollars per month per account, and are oriented towards high-volume business users."

My reaction:

Sprintnet provides "local phone no. access" to online services such as AOL and Delphi (and has done so for several years). The Delphi connection is to text-based Delphi as opposed to Delphi's new graphical <web based> system); the AOL access is to AOL's proprietary GUI. With respect to your comment

about Sprintnet charging "hundreds of dollars per month per account," be advised that Delphi currently offers text based access at a price (to the user) of $19.95 per month for up to 25 online hours (access via either Sprintnet or Tymnet); the Sprintnet access has no day/time restrictions ... Tymnet access has a $9.00 hourly surcharge for "prime time" (Monday through Friday business hours). Meanwhile AOL is still pricing "unlimited" usage (via either Sprintnet or AOLnet) at a monthly flat rate of $19.95 per month.

Clearly, for the economics to work for Delphi and/or AOL, the deal they have with Sprintnet is nothing at all like "hundreds of dollars per month per account."

In summary, Mr. Hakala's bottom-line conclusion ... that Sprintnet was not a practical approach to Mr. Muller's problem (remote POP dial-up access for users) is most likely correct, but his rationale was somewhat misleading; probably Mr. Muller's BBS does not have a membership volume that would allow them to strike a "volume deal" with Sprintnet analogous to Delphi (much less AOL <G>); I suspect that Sprintnet would just respond "not interested" rather than invoke some ridiculous pricing policy of "hundreds of dollars per month per account." Just my two cents.

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Keep up the good work,

Ted Rodrick
trodrick@delphi.com
trodrick@earthlink.net
trodrick@aol.com

P.S. A little plug for Delphi's innovative pricing plans ... I'm currently using their CONTENT PLan, which (paid in advance) costs me only $34.00 per year). For that, I get unlimited text-Delphi access via telnet from my ISP, and unlimited access to graphical Delphi via my local ISP and web browser. A *fantastic* deal, IMHO. :) :)

Ted:

It is true that the "hundreds of dollars per account" may have been overstating the case. But Mr. Hakala's assertion that x.25 packet networks, as currently priced by these companies, was not economically viable for what Mr. Mueller wanted to do still sounds right to me. And the Delphis and AOLs have moved strongly away from this type of access themselves in the past few years, to developing their own local access POPs and data networks internally. So comparing their pricing, based on some remaining x.25 access nodes, doesn't strike me as logical or appropriate.

The Delphi deal does sound attractive at ***$34*** *per year and you get your own access where you can.*

Jack Rickard

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FOOD FOR THOUGHT

Hi Jack,

Has anyone told you lately what a great mag you publish?

I note in the January `97 issue's Letters to the Editor, David Hakala's reply to Nathaniel McMullin (pg 16), "AOL's nationwide POPs will be advantageous for travelers..."

The following is part of a message I sent to my ISP on 970108:

"Food for thought"—I've just returned from several weeks of driving in the Eastern US. I use AOL on the road as they offer many local access POPs...when you can get in. I also called into your system long distance a couple of times per day, and in a few locations used someone else's ISP and their username and password to access my email and web site. The thought is this: With some 12,000 plus ISPs online, could a process of guest access be established among them?

A rough idea of working method would be to log into a local (say Memphis, TN) ISP with a username of gsenet.org@nac.net and my regular password. Seeing this form of username, the Memphis ISP would contact your server to see if I am subscribed ($) for universal guest access. If approved, the Memphis ISP would open a limited (~60 min/day) gateway for me. Using a system like this, only the users "home" ISP would be responsible for billing etc. The "guesting" ISP would only need to be participating in the "Guest Access Service" (GAS?), and would collect its revenues, for adding this feature, by selling this service to its local users.

With professional "road warriors" gradually shifting away from the "big 3" (AOL, CServe, Prodigy) to ISPs, a service like this would be a boon to travelers.

Thanks,
Phil Reynolds

Phil:

I guess I think ISP account "roaming" is coming. But getting a group of ISPs to do anything in concert can be frustrating. I had very high hopes with a company called IPASS ALLIANCE. They seemed to have it all together pretty well. I quizzed the company president pretty hard, and he seemed to have most of the right answers.

Unfortunately, many of these small companies just can't get out of the way of themselves long enough to stand still for success. We received repeated, and I do mean REPEATED assurances from this man that the differential between the price they bought access at and the price they sold access at in their role as arbitrageur of services was approximately 10%—though negotiated on a case by case basis. We ran the article, the phone rang a few times from excited ISPs, and with the heady aroma of the ink in their nostrils and a full two afternoons of phone calls, the business plan changed. They have quoted several ISPs' deals where they basically buy at $1 per hour and sell at $1.60 per hour—more like a 60% markup.

At this point I regret the story. But it's not the first time we've been "had" in this way. In reporting things, we tend to affect them if they are too small. And I'm sure we've killed this one. They got all excited, changed their pricing to cash in on the bonanza, and not being sufficiently sophisticated or generous of spirit to know what to do, they'll undoubtedly crash and burn probably by the time you read this.

That said, roaming is a proven concept in the cellular field, for example, and someone will step up to put this thing together so you road warriors can have access from anywhere. It's little enough to ask, and a rather clear need.

Jack Rickard

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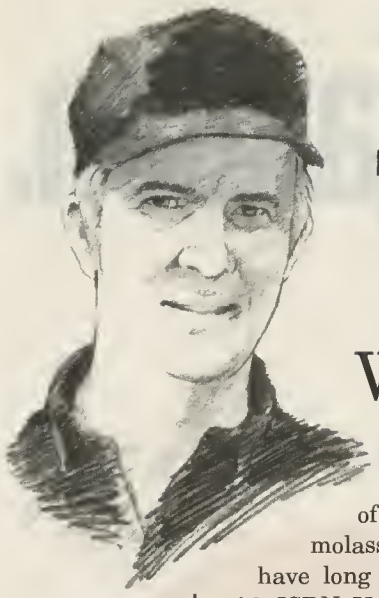

TECHNOLOGY FRONT

by Jim Thompson
Western News Service

THE ANGIA I-BAHN — FAST LANE TO THE INTERNET FOR THE ROAD WARRIOR

Jim Thompson is Managing Editor of Western News Service in Los Angeles, California. CompuServe: **72777,2677**, MCI Mail: **321-4127**, **mailto:** jim.thompson@wnsnews.com

When it comes to the World Wide Web speed is the defining factor. Speeds of 28.8 Kbps and 33.6 Kbps sounded blazingly fast when first announced, but it wasn't long before the slowness of the Net made those speeds seem like molasses in January. Those "in-the-know" have long been getting around the bottle neck with ISDN. Using a single channel on the ISDN line you get speeds of 56 Kbps or 64 Kbps (depending on your telephone provider), These channels can be "bonded" to achieve 128 Kbps. Adding v.42 compression (up to 4 to 1 compression ratios) to the mix will results in yields up to 512 Kbps! When you hit these kinds of speeds, the Web really becomes a usable tool.

The biggest problems with ISDN have been the difficulty in setting up the line and in the inability to connect to a line at a remote location. ANGIA Communications, Inc. (www.angia.com) has solved both of these problems with the introduction of the **SafeJack ISDN + Fax/Modem**.

This baby has it all — ISDN (Basic Rate Interface, two 64 Kbps channels and an additional D channel for control information) 28.8 Kbps modem and 14.4 Kbps fax — in a single Type II PCMCIA card. Its portability is enhanced by the fact that no external power supply or additional equipment is needed to connect over an ISDN line.

ISDN adapters or devices allow one to use digital ISDN lines. Although they are look like and are often called "modems," ISDN adapters actually function much differently. While a modem modulates digital signals at one end of a connection and then demodulates the signals at the other end, the nature of digital ISDN phone lines does not require this process. The result is a much faster and more reliable connection.

If you want to use the I-Bahn combo PC card over an ISDN line, you will need an ISDN Basic Rate Interface (BRI) line. BRI operates over the same wiring as a standard analog telephone line. At the user end, you normally find an RJ45 (8 pins) or RJ11 (4 or 6 pins) wall jack. The BRI usually contains three channels — two 64 Kbps (or 56 Kbps depending on your telephone provider) B-channels and one 16 Kbps D-Channel. The two B-channels carry (or bear) data or voice information while the D-channel is used as a control channel.

For signals from the BRI to be translated into signals that the computer can understand a couple of devices are needed. These include a Terminal Equipment 2 (TE2) — normally this is your computer or telephone. The TE2 requires a Terminal Adapter (TA), such as the Angia I-Bahn, to communicate over the ISDN line. The TA translates between non-ISDN signaling that TE2s use and the S/T interface signaling which is used by a Network Termination (Unit)-1 (called an NT-1). The NT-1 translates information between the short distance signaling used at the S/T interface and the longer distance signaling used at the U Interface. The NT-1 also converts from the two wires used for the phone line to the six or eight wires needed for the S/T bus.

The I-Bahn comes with either a U interface or an S/T interface. The U interface provides a built-in NT-1 while the S/T interface is for those who already have an NT-1 installed at their location. Most will want the U interface since it provides all the equipment you need in a single card — something that is essential when traveling. After all, how often do you find an ISDN line AND a spare NT-1 lying around. Considering that an NT-1 can cost anywhere from $150-$350, the U interface also provides a substantial savings.

The I-Bahn supports v.110, v.120, clear channel, PPP and MLPPP (S/T version only). It is compatible with all U.S. switch types (NI-1, DMS-100, 5ESS) as well as the European standard switch (NET3) and the Japanese national switch type (NTT). You can use it almost anywhere in the world. The I-Bahn also has its own on-board controller (Active Terminal Adapter) which improves performance and features a pair of LEDs which provide instant analysis of the line status. The LEDs indicate power to the I-Bahn, sync with the ISDN line, carrier or connection to another device and ring detect.

:-)

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:-| ISP finds NAS not all

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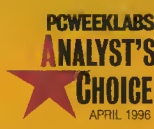

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Of course, finding a spare ISDN line is something that probably won't happen very often when you travel — but not to worry. The I-Bahn also has a V.34-compliant Fax/Modem built in so you can use any regular analog telephone line. If you have ISDN but you need to send data or a fax to a location that does not, the I-Bahn provides for an analog connection over your ISDN line.

The biggest problem with ISDN has been the difficulty of setting up the line and the software so everything works properly. Angia has addressed this with a configuration program that's extremely easy-to-use. A simple interface prompts you for some basic information. All you need to do is enter your SPID and directory numbers (supplied by your ISDN provider), switch type and protocol, and the software does all the hard stuff. You can store various profiles for quick access while traveling. The configuration manager includes a number of other handy features including built-in terminal software so you can test your connection, diagnostics tools, and a utility for applying firmware updates.

CONCLUSIONS

I love this thing! It provides all of the functionality and features for remote connections one would want or need in a single Type II PCMCIA card. I found it easy to install and just as easy to use.

I use ISDN on a regular basis as a fast and efficient way to send large photo and image files. In the past, I had to drag along a cumbersome desktop adapter to access a line and then fight with confusing setups. The I-Bahn has eliminated all this hassle and made working on the road much easier. Having a standard modem and fax in the same device is a major convenience.

The one thing that I do not like is the connector (SafeJack) used to interface with a standard telephone line. It is a small plastic connector containing two RJ11 jacks. The nice part is that you can plug a line into one of the jacks and plug a telephone (instrument) into the other. The downside is that it is small and easy to lose. Of course, if it does get lost, you are out of business.

Angia Communications says this is not a bug, but a feature, noting "the SafeJack adapter disconnects from the PC card so that if you happen to trip on the phone cord the SafeJack releases rather than breaking the jack or pulling the computer to the floor."

The ISDN interface is much larger. It is made up of a plug (that goes into the I-Bahn) which is attached to a cord and adapter into which you can plug an RJ45 connector. Since it is large, this connector is less likely to get lost.

The I-Bahn, as well as all Angia equipment, is backed by a lifetime warranty which is the best in the business. The technical support staff is also one of the best in the business and, to make it even better, is available via a toll-free telephone number. I have used Angia modems for several years and found them to be reliable in every sense of the word.

The I-Bahn is a true winner. If you need ISDN access in remote locations, you can't do better than the I-Bahn.◆

ANGIA

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Provo, Utah 84606
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e-mail: support@angia.com
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ANGIA I-BAHN SPECIFICATIONS

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General Specifications
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- PCMCIA 2.1 Compliant
- 16550 UART
- Flash ROM
- 10 telephone number storage in non-volatile memory

Power Consumption — ISDN:
- 1000mW operating mode
- 175mW sleep mode

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- 800mW idle mode
- 175mW sleep mode

Standards and Protocols — ISDN
- V.110/ — ITU standard for terminal rate adaption by bit stuffing
- V.120/ — ITU standard for terminal rate adaption with statistical multiplexing
- Q.931/I.451 — ITU standard for basic ISDN call control
- Q.932/ — ITU standard for control of ISDN supplementary services
- I.430 — ITU standard for layer 1 specifications
- PPP — Point to point protocol
- MLPPP — Multi-link PPP; protocol for multiplexing both B-channels (S/T version only)

Standards and Protocols — Modem
- V.34 — ITU standard for modem operation of up to 28800 bit/s
- V.32bis — ITU standard for up to 14400 bit/s full duplex modem operation
- V.32 — ITU standard for up to 9600 bit/s full duplex modem operation
- V.27ter — ITU standard for modem operation of 4800/2400 bit/s on the GSTN
- V.25bis — ITU standard for automatic calling/answering equipment on the GSTN
- V.23 — ITU standard FOR 600/1200 bit/s on the GSTN
- V.22bis — ITU standard for 2400 bit/s full duplex modem operation
- V.22 — ITU standard for 1200 bit/s full duplex modem operation
- V.21 — ITU standard for 300 bit/s full duplex modem operation
- Bell 212A — AT&T standard for 300/1200 bit/s full duplex modem operation
- Bell 103 — AT&T standard for 300 bit/s full duplex modem operation

Error Correction
- V.42 — ITU error correction procedure for DCEs using async to sync conversion
- MNP2-4 — Microcom Networking Protocols for error correction

Data Compression
- V.42bis — ITU protocol for up to 4 to 1 data compression
- MNP5 — Microcom Networking Protocol for up to 2 to 1 data compression

Fax
- V.29 — ITU standard for 9600 bit/s fax
- V.17 — ITU standard for 14400 bit/s fax
- Class 1 — Group 3 fax standard
- Class 2 — Group 3 fax standard

Data Rates
- ISDN Sync — 64K, 56K, 19.2K, 14.4K, 12K, 9.6K, 7.2K, 4.8K, 2.4K, 1.2K, 600
- ISDN Async — 230.4K, 115.2K, 57.6K, 38.4K, 19.2K, 14.4K, 12K, 9.6K, 7.2K, 4.8K, 2.4K, 1.2K, 600
- Modem — 115.2K, 57.6K, 38.4K, 19.2K, 14.4K, 12K, 9.6K, 7.2K, 4.8K, 2.4K, 1.2K, 600, 300,

Supported OS Platforms
- DOS
- Windows 3.x
- Windows 95
- Windows NT

What is this thing called ISDN?

ISDN, which stands for Integrated Services Digital Network, brings the digital network to the individual user. With ISDN, the same twisted-pair copper wire that is used for standard (analog) telephone lines can carry as many as three separate "conversations" at the same time, through the same line at speeds many times faster. This ability opens many possibilities, including practical solutions to such things as telecommuting, inexpensive videoconferencing, remote broadcasting and sound transfer, engineering, LAN-to-LAN connectivity, and even interactive publishing.

The basic ISDN-to-user connection is called a *Basic Rate Interface* (BRI) and contains three separate channels, or "pipes." Two of these channels (the B channels) carry user "conversations" from a telephone, a computer, a fax or almost any other device. A third channel (the D channel) is normally used as a control channel to carry setup information for the network, but it can also carry user data transmissions.

According to Pacific Bell, this means that "two separate 'conversations,' say, a voice call and a computer transmission, can take place at the same time through the same ISDN line. Simultaneously, a third 'conversation,' a CompuServe session or a credit card authorization, for example, could also take place through the same connection. The power of ISDN enables all three of these transmissions to happen at the same time, through the same copper twisted-pair telephone line that once could handle only one transmission at a time.

"Two or more channels can be combined into a single larger transmission 'pipe.' Channels can be assembled as needed for a specific application (a large video conference, for example), and then broken down and reassembled into different groups for different applications (normal voice or data transmissions). Combining B channels in this manner is called inverse multiplexing, or bonding," notes Pacific Bell.

Additionally, ISDN can support as many as eight separate devices (telephones, computers, fax machines and more) and as many as 64 separate telephone numbers through a single BRI connection. Because digital and analog systems are fully interconnected, ISDN telephones and devices can call to and receive calls from standard telephones.

Most standard telephone wiring (twisted copper pair) can transmit ISDN digital signals without any changes or additions. However, some older buildings and homes may need to upgrade wiring.

You will also need access to a suitably equipped digital switching system and the proper equipment.

A digital network like ISDN offers two important advantages — clarity and speed.

Digital signals ignore the static and noise that often affect analog transmissions, especially over long distances and older telephone lines. They offer quiet, static-free, voice conversations, and virtually error-free data connections, worldwide.

Second, a digital network carries data at speeds of up to 128 Kbps without data compression and more than 500 Kbps with compression.

ISDN ON THE WEB:

Here are some address of web sites that carry information on ISDN.

alumni.caltech.edu/~dank/isdn
— This is Dan Kegel's ISDN page and the most comprehensive list of information I have found anywhere on the Web.

www.ziplink.net/~ralphb/ISDN
— ISDN Tutorial by Ralph Becker

www.pacbell.com/isdn/book/toc.html
— Pac Bell's ISDN User's Guide

www.pacbell.com/Products/SDS-ISDN/Mag
— Pacific Bell *OnLine* Magazine

www.cnm.bell-atl.com/reality.html
— Bell Atlantic

www.cis.ohio-state.edu/hypertext/faq/usenet/isdn- faq/top.html
— Frequently Asked Questions

www.cis.ohio-state.edu/~fine/ISDN
— A Guide to ISDN

www.atria.com/People/jtk/ISDN.html
— NYNEX: home ISDN for Internet access FAQ

www.eleceng.livjm.ac.uk/isdn
— Liverpool John Moores University's European ISDN Web Page

ncet.csv.warwick.ac.uk/WWW/randd/isdn
— Theo Wright's Guide to ISDN for UK Schools

www.isdnshop.com/isdn-basics.html
— ISDN 101 - An Introductory Survey of ISDN

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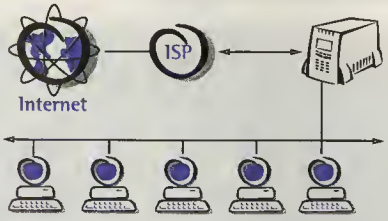

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or visit our partners page at

www.whistle.com

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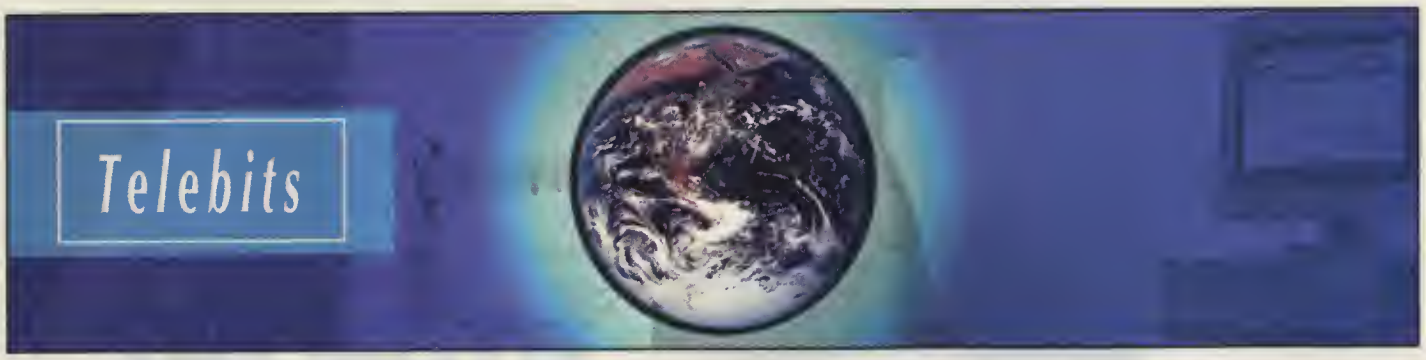

ZOOM INTRODUCES A MULTI-PURPOSE ISDN PRODUCT

Zoom (`www.zoomtel.com`) has started shipping the Zoom/Duo terminal adapter that will support data, fax and voice in addition to high-speed digital data transmission. It offers PPP connections at 64 Kbps or 128 Kbps and supports V.42bis compression, which can increase speeds up to 460 Kbps.

But, the Duo is also a fax modem and has a jack for a telephone handset. Unlike most data-only ISDN terminal adapters, the Duo can be used as a fax machine and a telephone. It also has flash memory for easy upgrades in the future

This versatile, all-in-one card has a list price of **$349** and comes with a 7-year warranty.

DELTACOMM LAUNCHES NATIONAL TOLL-FREE ISP

DeltaComm Development, who has designed communication and BBS software, launched a new service provider. The service, called ***deltaComm Internet Services,*** is unique because it focuses on mobile users who travel throughout the country.

Users pay a flat rate to connect to deltaComm through a 1-800 number. The company has two access points in Raleigh and Nashville, but users everywhere can use the service. The company offers several plans from **$9.95 per month** to **$24.95 per month**.

For more information, or to sign up, go to deltaComm's web site at `www.delta.com/delta/online` or call **800-859-9000**.

ACCESS BEYOND INTRODUCES REMOTE ACCESS SERVERS AT $499 PER PORT

Access Beyond's new line of remote access servers will sell for $499 per port, placing them among the least expensive servers on the market.

The AB-T1240 ISP, which supports 24 phone lines from a single T-1, sells for $11,995. The AB-E1300 ISP sells for $14,995 and is designed for 30 E-1 lines.

Access Beyond says that it will also release ISDN BRI remote access servers in May. For more information on any of these products, see Access Beyond's web site at `www.accessbeyond.com`.

VISUAL WEB TOOLS CD-ROM

The Visual Web Tools CD-ROM is a cross-platform development suite with a plethora of resources for web masters using the Windows or Macintosh environments. It comes with 250 unique page background designs, buttons and icons, and HoTMetaL Light.

Web masters can save thousands of dollars on software and hundreds of hours in learning how to make designs. SoftQuad's HoTMetaL Pro 3.0 is among the most popular HTML authoring software packages. Visual Web Tools CD is **$29.95** (plus $3.95 S&H) and entitles you to a **$60 discount** off the retail price of HoTMetaL Pro.

Stop by `www.mediaexh.com` to see samples, download some freebies or buy the disk.

VISIT BOTSPOT AND CHAT WITH ELIZA... THE ORIGINAL CHATTERBOT!

BotSpot (`www.botspot.com`) is *the* Spot for all Bots on the Net including 13 searchable Bot classification databases, FAQs, libraries, articles, newsletters, electronic journals, conferences, previous conferences proceedings, New Bots, Add a Bot, NewsBots, CommerceBots, KnowledgeBots, Search-Bots, Intelligent Agents and more. Visit the BotSpot of the Week awarded by Team BotSpot.

BotSpot has received over 65 awards in its first four months and is lauded as the definitive resource for bots and intelligent agents on the Net.

USR LAN LINKER IS A HIGH-PERFORMANCE LOW-COST STRIPPED DOWN ROUTER

US Robotics' new LAN Linker 56 and LAN Linker BRI are low-end routers designed for easy connections. The LAN Linker 56 has a list price of **$995** and allows for PPP or Frame Relay connections to the Internet. The LAN Linker BRI lists for **$795** and supports ISDN.

Both LAN Linkers support IP, IPX, and AppleTalk simultaneously and do LAN-to-LAN routing.

Profitable Solutions for ISPs

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EXPLORE ways to expand offerings and create new revenue with little or no development cost.

ENJOY a bird's-eye view of the 18th hole at the 1997 BellSouth Classic, Atlanta's PGA Tour golf tournament, following the daily conference schedule and through the weekend of May 11.

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FTT is a full-service billing provider to the Telephony, Internet and Utilities industries.

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The LAN Linker models are simple, stripped-down routers with no missing features. There are other **$700** routers on the market, but most require add-on options for memory or multiple protocol support.

WEB SITE DEDICATED TO ISP FINANCING

Stapleton and Associates of Boulder Colorado has launched a web site dedicated to Internet based alternatives to traditional business financing. The site, *The Digest of Internet Financing*, (`www.stapes.com`), is really a weekly publication covering issues, topics, and concerns for anyone hoping to use the Internet as a resource in raising capital.

Stapleton and Associates is a management consulting firm specializing in the Internet. Its founder, Paul Stapleton, will be a contributing writer to this, and future issues of ***Boardwatch***.

CISCO AS5200 TO INCLUDE FREE 56K UPGRADE

Cisco Systems has announced that it will offer free 56K upgrades for its AS5200 universal access server. For purchases made after February 1, 1997, Cisco will offer free upgrades to 56K-flex technology.

The price of the AS5200 has also dropped by 25% to **$28,100** for the 48 modem unit. Cisco's web site is **www.cisco.com**.

COMPUSERVE TO TEST ALL 56K MODEM TECHNOLOGIES

CompuServe will support testing of 56K modem technology from Lucent, Rockwell and US Robotics. CompuServe is currently testing US Robotics' x2 technology and plans to offer service by mid-March. The worldwide online service says it is also testing fast modem technology based on the Lucent and Rockwell chipsets.

CompuServe's position on the 56K issue is that it does not "intend to deploy any of the proprietary modem technologies ... until an industry standard is reached."

NEW ONLINE GAMING NETWORK HITS THE WEB

Adventure Online Gaming's new gaming network, Gameworld will be launching this spring. Gameworld, focusing on social role-playing and head-to-head strategy games, is 100% JAVA Internet-based, multi-player, cross-platform (PC, MAC, UNIX), accessible online via web browsers (Netscape, Internet Explorer, Hot JAVA) or runs locally installed. Users can subscribe to Gameworld for under **$10 per month.** Gameworld is continually expanding its game collection. Its unique human player-referee provides intelligent talking monsters and responsive immersing plots. Stop by at `www.gameworld.com` or give them a call at **(818) 796-6325**.

PRODIGY ORDERS X2 MODEMS FOR ITS POPS

US Robotics has confirmed that Prodigy has ordered Robotics Total Control Enterprise Network Hub products for at least 165 of the ISP's point of presence (POPs). This announcement confirms that Prodigy will support US Robotics' x2 modem technology.

US Robotics claims that over 400 Internet service providers are committed to supporting x2.

ISPs can use the Total Control Enterprise Network Hub for dial-in access. It supports X.25, ISDN, Frame Relay, Ethernet, and Token Ring.

ICVERIFY RELEASES DEBIT AUTHORIZATION PACKAGE FOR WINDOWS

ISPs, who are adding 143.23 customers each month, can now easily authorize their new clients' credit cards. ICVERIFY has released its authorization software for Windows 3.x, 95 and NT. This latest offering provides credit card authorization/draft capture, check guarantee, and debit /ATM (the other ATM) card authorization.

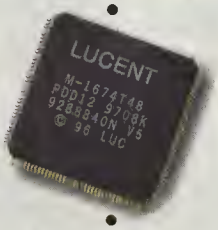
Single user versions are available for **$369** and a multi-user network version is **$529**. The URL is `www.icverify.com`

WE HAVE ONLY ONE THING TO SAY ABOUT UPGRADING TO 56 KBPS.

The Livingston PortMaster™ 3 Integrated Access Server

Psst! It's no secret that to stay competitive, you need to upgrade your dial-in network to 56 Kbps. And the fastest, easiest, and most economical way is to invest in PortMaster 3 access servers with TrueDigital modem cards now. Then you can sit back and relax. And later this year, we'll automatically upgrade your cards to 56 Kbps. Quickly. Easily. And free. Just complete a simple registration form by June 30, 1997 —and we'll handle the rest.

Our new hot-swappable TrueDigital modem cards use K56flex chips from Lucent Technologies' Microelectronics Group for blazing fast performance. More than 400 hardware and remote access vendors already support K56flex, giving your network the widest 56 Kbps compatibility in the market. And letting users access your service with breathtaking speed.



As a PortMaster 3 customer, you'll also enjoy a host of other built-in benefits to streamline your network and make your job easier. Such as integrated ISDN and analog support. Access routing. Firewall filtering. RADIUS authentication. Built-in CSU/DSU. And our proven ComOS™ operating system that delivers the ultimate in reliability and scalability. All in a compact, space-saving chassis. For details and to order, call us at **1-800-458-9966.** Or browse our Web site: www.livingston.com.

Livingston Enterprises, Inc.

REAL TIME AGRIBUISINESS REPORTS VIA THE WEB

Data Broadcast Corporation has launched the AgCast Network, an Internet based agricultural business data service. For **$29.95 a month,** subscribers such as farmers or agricultural professionals can get real time agricultural business information. Because it is a push service, users do not spend any effort searching for information. It is delivered right to their desktops.

Data Broadcast Corporation is a leading provider of subscriber based real time market data, stock quotes, sporting news and gaming information.The URL for AgCast is `www.agcast.com`. Data Broadcast Corporation's URL is `www.dbc.com`.

FANTASY BASEBALL ONLINE

Daedalus World Wide has introduced COMMISIONER.COM, a true online fantasy baseball league. For **$295 per league**, each manager and commissioner can chat over the web and receive daily updates. Commissioner.com can also send automated faxes to team managers who are not on the Net. For more information, ther URL is `www.commissioner.com`.

WEB BROWSING FOR THE BLIND

The World Wide Web is great, assuming you can see the graphics. That is why The Productivity Works has introduced pwWebSpeak, a software package designed to help the blind to use the Web. PwWebSpeak also helps individuals with limited sight or reading disabilities who rely on magnified fonts or speech synthesis for their PC needs. Clients can use PwWebSpeak to access any web site or Internet resource, therefore, it requires no special server software. A sample copy of pwWebSpeak is available at The Productivity Works' web site. The URL is `www.prodworks.com`.

THE COMPLETE $1,200 WEB SERVER

Check out Arlis Tyner's *$1,200 Web Server* page which describes a Macintosh-based web server that can handle 25,000 hits per hour, using a 68030- or 68040-based Mac and a 28.8 modem. The URL is `www.iquest.net/~arlis/$1200WS.html`.

There's useful information and links to everything you'll need to assemble your own reliable, high speed, web server for around **$1,200**. Used 68K Macs are selling for less than $500 and the server software, Web Server 4D, is only **$249**. An evaluation version is available at `www.mdg.com`, a web site which is remarkably fast considering it is connected to the Net through a 28.8 modem. Really.

AFTER DARK FOR THE WALL STREET JOURNAL

The *Wall Street Journal* has teamed up with Berkeley Systems to introduce its interactive version as a screen saver. With *WSJ Interactive Edition,* subscribers can now enjoy a screen saver news application like the PointCast Network with all the content of the widely read paper.

The system is available for Windows 95 or Macintosh and requires Berkeley's After Dark Online. Users essentially download stories which are then displayed on the desktop like a typical screen saver. Like the PointCast Network, individuals can customize the content they receive. Unlike PointCast, the *Interactive Journal* is **$49** per year.

The URL for more information on Dow Jones Interactive Publishing is `bis.dowjones.com`

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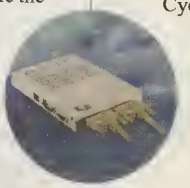
Cyclades®-PathRouter

TCP/IP Router (Frame-Relay, PPP, X.25)

The Cyclades-PathRouter comes with one Ethernet LAN port, two WAN synchronous ports (one T1/E1, one optional 56/64 Kbps), one high-speed asynchronous port (230 Kbps), full TCP/IP protocol, Frame-Relay, PPP, SNMP, dial-on-demand, dial back-up, PAP, CHAP, filtering capabilities (packet and service), and GUI (Graphic User Interface) configuration.

Cyclades-PathRouter also uses Flash Memory for painless software upgrades.



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$399* (8-port DB25 PCI Card, Octopus cable included) List Price: $695

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PRODIGY LICENSES VOXWARE TECHNOLOGY TO DELIVER INTERACTIVE VOICE SERVICES OVER THE INTERNET

Prodigy Internet (www.prodigy.com) has licensed Voxware's voice-compression and VoiceFont technology. The first use of this innovative technology in Prodigy Internet is expected by April. The agreement enables Prodigy Internet to deliver real-time voice services using Voxware's low bandwidth RT24 and RT29HQ compression-decompression (codec) and VoiceFont 2.0 technologies.

Prodigy Internet is available for **$19.95** and can be ordered through major retailers, or by phone (**1-800-PRODIGY**). It can also be downloaded from Prodigy's home page (www.prodgy.com).

Voxware is a leader in digital speech technology. Its MetaVoice technology requires very low communications bandwidth and processing power to reproduce high-quality speech. Similarly, MetaSound technology delivers high-quality audio through bandwidth-constrained environments.

The Voxware URL is www.voxware.com. Information is also available through e-mail (vox@voxware.com) or by calling **(609) 514-4100**.

BELL ATLANTIC OFFERS AGGRESSIVE ISDN PACKAGE

Bell Atlantic (www.ba.com) has teamed up with 3Com (www.3com.com) to bring ISDN to homes in Maryland, Pennsylvania, Delaware, New Jersey, Virginia, West Virginia, and the District of Columbia. The company is offering **free ISDN installation** and a 3ComImpact IQ external ISDN terminal adapter for **$259**.

Bell Atlantic says it is committed to making ISDN affordable for its customers.

The 3ComImpact IQ will allow customers to use ISDN for data and voice. Customers can use the existing wire in their homes for their Internet connections and telephone conversations. Following the free ISDN installation, customers are entitled to a free 30-day trial of Bell Atlantic.net, (www.bellatlantic.net). After that, ISDN Internet service to Bell Atlantic.net starts at **$19.95 per month**. Customers also have to pay for their ISDN connections.

In Maryland, ISDN connections start at **$28 per month** for 20 hours. In the six other states serviced by Bell Atlantic, connections start at **$31**.

ISDN can be ordered through InfoSpeed, Bell Atlantic's ISDN sales channel, by calling **1-800-204-7332** Monday through Friday between 8:00 AM and 8:00 PM Eastern Time.

Information on the 3ComImpact IQ is available at www.3com.com/0files/products/bguide2/8_22.html.

INTEREST!ALERT ANNOUNCES PUSH TECHNOLOGY FOR INTELLIGENT CONTENT CHANNELS

Interest!ALERT Inc. is offering push technology channels that allow any web content provider or publisher to create a broadcast delivery and news service in minutes to regularly provide new information to customers or interested web site visitors.

The Sacramento, California company says organizations can create a channel that offers live news feeds relating specifically to their industry, deliver newsletters, FAQs and new product announcements directly to desktops of people who have expressed interest. Interest!ALERT allows web content providers or publishers to create professional news pages and communication pieces and post them daily. Web publishers can also create news and group filters to provide fresh, relevant information to web site visitors automatically. Organizations can put the link directly on their web sites. When users click on the button, they are automatically connected and can customize the information they want.

Interest!ALERT brings users just what they are interested in based on filters that the users create. Organizations can offer their own version of the information service through their own content channels, which can be delivered through Interest-Alert's push technology or through upcoming push services that use Microsoft CDF standard, PointCast Connection or Netscape Constellation. The cost **starts at $295 a year** for the content provider and free to the client. For more information call **800-547-8288** or **916-985-4445**, or visit www.interestalert.com.

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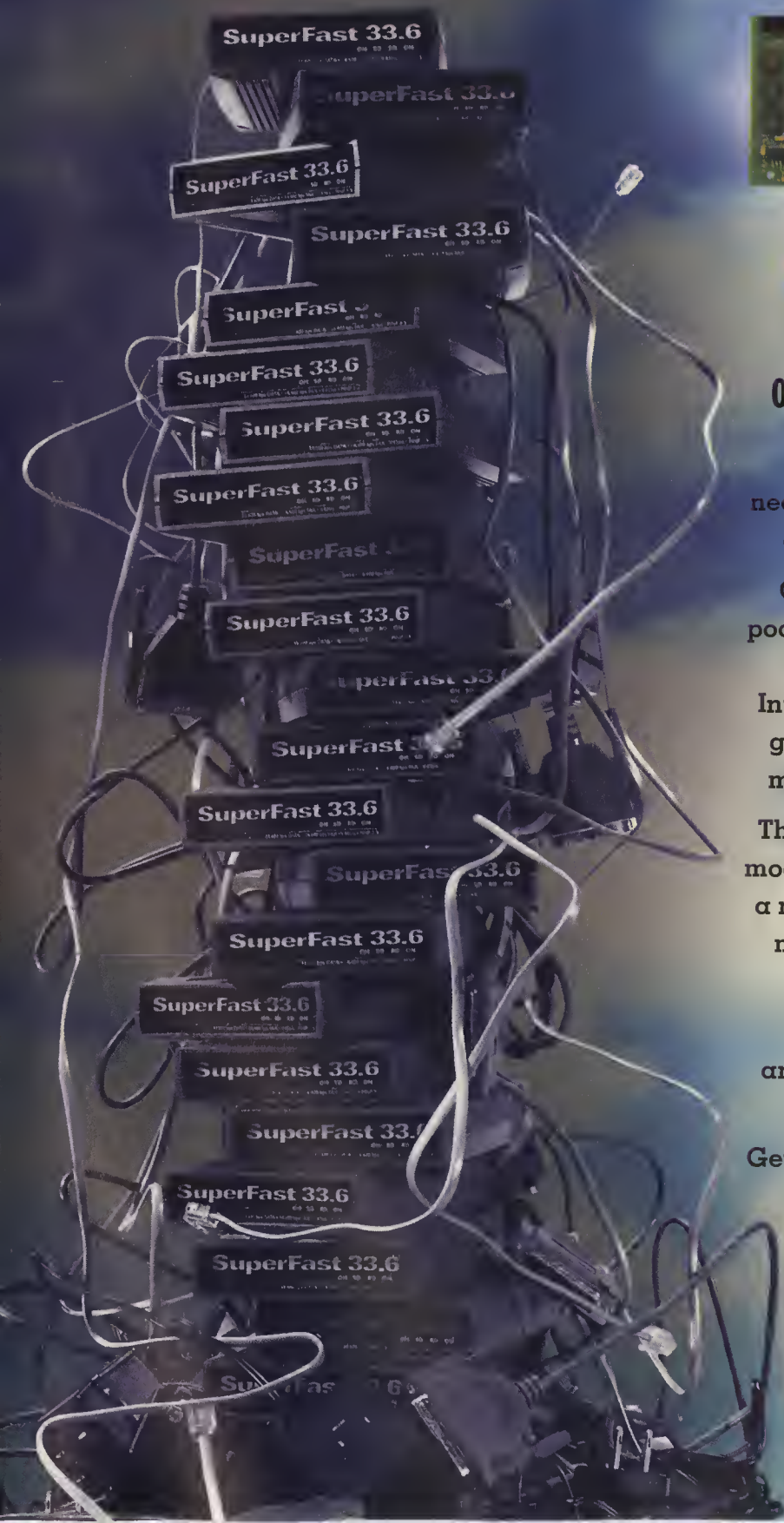
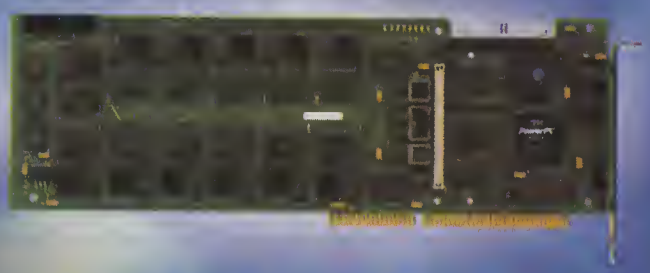
JAMMED



Jammin!



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Get Ariel's high-density T1-Modem, and...

Be jammin! Not crammin!

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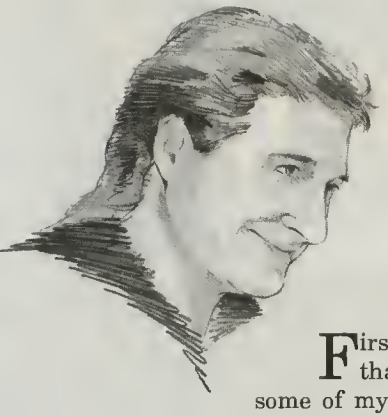

BABB'S BOOKMARKS by Chris Babb

A MIXED BAG OF BEANS

Chris Babb is a Senior Systems Engineer for Control Masters, Inc., a Systems Integrator located in Downers Grove, IL, where he designs industrial automation software by day. He's a member of the Aquila BBS/Internet Team by night. Chris has worked with Aquila since 1990 and currently handles technical support, Web design and construction, Internet training and various other online and offline duties. In his meager spare time, Chris enjoys music, playing bass guitar, the outdoors and his kitties. You can reach Chris via **mailto:**chris.babb@aquila.com

First off, I'm alive and well and want to thank Jack for giving me the time to get some of my family and work affairs in order over these last couple of months. Every once in a while, life can seem to grab you by the seat of the pants and shake things up a bit. Hey, that's no different than the Internet, is it?

So what has been happening over these last few months? It seems like all kinds of things have been going on in the Internet world (like that's any great surprise). Let me see, it looks like cable modems are not making any inroads, are they? Considering that they can't keep cable service running through a light sprinkle, that comes as no great surprise. Also, with Internet network traffic resembling the Eisenhower Expressway during rush hour at times, high-speed Internet access is truly an oxymoron. Fortunately, it looks as though things are starting to get better.

I think the most interesting thing to happen over the last few months has been the underestimation by AOL of how many people wanted unlimited Internet access. What makes this so interesting is that it proves a point that I have always believed: You get exactly what you pay for! You want cheap service, you get cheap service. Working with an ISP has helped me understand that you cannot make enough money to keep your service going by offering cheap, unlimited Internet access without sacrificing something. In AOL's case, that something was access, access, access. Not just in the number of modems available to customers, but in network speed, customer support and above all, their customers' patience. There were 3 things that I found the most interesting about the entire debacle. First, and foremost, with the emphasis that AOL has put into marketing, I fail to understand how they could possibly underestimate the demand for their service. Second, while they had no trouble figuring out how to make sure everyone paid for the service, they gave no reasonable options on how to terminate the service, short of their customers calling their respective credit card companies and having the charges refused. Third, I have been giggling incessantly at the commercials that came out of it. First, Steve Case, walking through a mass of construction and electronic equipment, apologizing and promising to do better. Then came the ankle-biters and Monday morning quarterbacks; the TV and radio commercials that spoofed the AOL problems and promised bigger, better and faster. Yeah, I have a life-sized picture of that one.

I suppose that Steve may be setting a precedent. Will the next thing we see is Bill Gates stumbling through a mass of bloated computer code, apologizing for bringing everyone's computer to a sudden crash from the latest Microsoft IE? Or maybe he will be begging forgiveness for causing everyone to have to invest in a 1 google hard drive and a gig of memory just to run the latest version of IE and Office? Right. Maybe the next natural disaster movie should forego volcanoes and asteroids and focus on the real threat to us and our businesses— The horror of the never-ending upgrade. Now that's something we can all identify with.

Java, it's still just coffee to me.

Am I the only person who is tired of having my computer taken over by installation programs that refuse to allow me to choose which parts of a software suite get installed? Does any serious user actually use all the pieces that come in a suite of programs? Have I complained about this before? Anyone who reads this column regularly knows that I have and I will continue to do so until some sense of responsibility sinks into the skulls of developers like Microsoft and Netscape. I will say again to these and other developers who unreasonably believe that I want to use all that they offer, GIVE ME THE OPTION! I already have an e-mail program that I like, I don't want yours. I already have a newsreader that I like, I don't want yours. All I want is a lousy web browser. Allow me to install that and only that. While you're at it, give me the option of what pieces of the browser gets installed. If I don't care about ActiveX and Java, I don't want the code taking up my space. There, I feel all better now.

Geez, after reading all this, you may be wondering if there is anything that I *do* like about the Internet? Well there is, and fortunately, I don't mind letting others know about it either. For example, this months column is going to take a look at some more of those great web sites that can help all of the web masters to get a handle on the technology that springs up day after day. I've taken some of them on before and since then, many more have popped up, ready to help the Web look better, feel better and work better. Hopefully, while making it look like you work hard, it will free you up to do other constructive things... like sleep once in a while or maybe visit with your family.

Site Builder Network
`www.microsoft.com/sitebuilder`

We all love to hate Microsoft but sometimes it's easy to forget that they offer some of the more useful pages available on the Web today. This is one of those places that any reasonable web master should visit, join and use regularly. This site is filled with so much information and goodies for you to use that I won't even try to hit on everything.

SiteBuilder network

The Site Builder Network is billed as Microsoft's one-stop resource for anyone who has anything to do with building and maintaining a web site. By golly, I believe they aren't blowing any smoke up the nether regions about this either! So what do we really have here? How about this shopping list:

In depth information on how to employ Microsoft's solutions to build a better web site—This includes items such as Visual Studio 97, consisting of Visual Basic & C++ 5.0, SQL Server 6.5, Visual Source Safe 5.0 and others; ActiveX technologies; SDK's; Visual J++, Microsoft's Java development tool; web server products; HTML authoring information; security information and more technology information than anyone should have access to in any one spot. Truly a frightening collection that's well worth reading.

Access to free tools and an abundance of trial versions of excellent programs— You may not believe this, but it is starting to seem as though Microsoft believes that it's worth giving away almost everything having to do with web — providing and design. Then again, if they sink their claws into you now and get you familiar with these products, you'd be hard pressed to switch to something else when Microsoft starts charging you for them. The other interesting thing is that this is not just limited to Microsoft products. There are a host of third party products available for evaluation as well.

Site Builder Magazine— A free e-zine devoted to helping you make the most of everything found at this site. Complete with behind the scene information on how others are using Microsoft products to offer eye-popping sites, the latest technologies and regular columns that cover the spectrum of web design, providing and maintenance.

Member Lounges—What fun could it possibly be if you couldn't be a member of something? Microsoft makes it easy to become a Site Builder Member by offering 4 different levels of membership. The Guest membership is free and only requires a few moments of your time to give Microsoft the marketing information they feed on. In turn, you have access to a select set of downloads and a heap of tips and tricks to make you a better web master. Level 1 membership only requires that you boast to the world that your site was designed for Internet Explorer by just dropping the logo and link somewhere on your site. Level 2 membership requires the above and in addition, you need to plop an ActiveX control somewhere on your site. Level 3 membership is more restrictive and requires you to deploy (I hate that word) what they call "3 commercial ActiveX-exploitive web sites." Of course, they also want $2,500 a year for the privilege. The offerings for the various levels increase proportionally but I have to admit that at least the first 2 levels fit my miserly budget.

Again, this is not everything that these pages offer and I suggest that everyone take a look, join up and feed on the information that I noted. Root around for those topics I didn't mention. It's time well spent.

Raspberry Hill Publishing – GIF Wizard
`www.raspberryhill.com/gifwizard.html`

This company specializes in high-end CGI programs that create customized pages and graphics on demand. They also offer what I consider to be something useful for web masters who actually care about the poor souls whose Internet access is somewhat less than blindingly fast.

The product I am referring to is ***GIF Wizard***. This nifty utility can help you pare down the outlandish size that some graphic elements seem to take on and makes your site "bandwidth-friendly." Let's face it, there is nothing worse than visiting a site and watching the status bar read "1% of 190K" for the next five minutes before seeing anything. Oh, I know you can turn the graphics off, but really, doesn't that defeat the entire purpose of the Web? I'd much rather have faster graphics than none at all. I suppose another school of thought would be to watch the color pallet and optimize your graphics yourself but I'll be the first to admit that there is nothing worse than making a cool graphic, only to maim it by trying to make it smaller. Also, I'm no graphics expert and I'd really rather let some cool utility like GIF Wizard fix it for me so I can do other useful things.

Here's how it works, from the main page, you are asked for the URL to the graphic you want optimized. You also have the option of selecting the background colors and re-sizing information. After these grueling steps, press the Start GIF Wizard button. Within a few moments, you'll have a page that shows the original bloated GIF you started with and 2 additional GIFs that while they look amazingly like the bloated copy, they have been hypersuctioned down to manageable levels. In my example image, I had fooled around quit a bit to get the image down to 30K in Fractal Painter. After running GIF Wizard on that same 30K image, I found that it had dwindled down to a minuscule 11K. Amazingly, it looked no different to my discriminating eyeballs.

Along with your images are some interesting statistics such as a pallet summary, pallet hex values, pallet histogram and the most interesting of all, estimated cost savings based on your image getting sucked off your web server approximately 50K times. For me, that cost saving was something like $113. Very cool. Another thing to think about is with smaller images, there will be less of a backlog of requests for your pages (assuming you have a popular page...that's the point, isn't it?) making your web server faster overall by working less.

Along with all of the above whiz-bang, you will find links to the Lycos image search feature (very cool), examples, samples and FAQs to help you create the best looking graphics at the least cost in bytes. See for yourself.

The Bandwidth Conservation Society
`www.infohiway.com/way/faster`

OK, let's say that you're curiosity was peaked in the last review but you don't want someone else touching a bit of your very own graphics. Fine. Then you can live with big ugly graphics (in size, that is), have people avoid your site in droves because of them, or, you can learn how to optimize your own graphics.

The purpose of the Bandwidth Conservation Society is to help you learn how to just that. Information is presented by a group of web developers whose goal is to be a resource for other developers who have an interest in optimizing performance (I wish everyone did) as well as maintaining appropriate graphic standards.

Offerings on this page include an offline version of the BCS; Cut-N-Paste Javascript (I like Javascript better than Java!) which is a severe time saver; tutorials that cover GIFs; logotype; background images; JPGs; optimizing with Adobe Photoshop; a forum where you can say what you think and further links to the world of bandwidth-friendly suggestions.

Webmaster Magazine
http://`www.web-master.com`

Sometimes I feel like I do nothing more than read trade magazines. I read a pile of them each month and I know our cleaning service would just love to pour the contents of my wastebasket all over my desk just to get back at me for all of the heavy garbage cans they have to chuck. Tsk ,tsk. But, to be informed, well educated, on-top and ahead of the pack, you must feel the need to read. Then again, sometimes it feels like everything that is going on is coming at you like a pyroclastic cloud of volcanic gas belching out of Dante's Internet connection (sometimes I also get to watch the Discovery Channel).

Webmaster Magazine is one of the highlights of my inbox (after ***Boardwatch Magazine***, of course) each month. It is filled with excellent and timely information on what is happening in the web industry with the technology and on the sites. As with any magazine, there are regular categories of information but the content changes as rapidly as the Web itself.

The site is well laid out and contains links to all of the current information as well as back issues. Subscriptions to the printed version are free and as usual, you have to fill out one of those annoying bingo-charts of information that asks a little bit of everything. Be sure to have your #2 mouse pointer ready. There are also exclusive links to other tantalizing bits of information that will help your site really stand out from the crowd.

While you're there, be sure to click on the Intermind Connector for some further entertainment. I'll review this site in a future column.

NUTSITE OF THE MONTH

Be forewarned this site won't appeal to everyone and if you don't like the sound of it, don't visit it and then blame me for upsetting you. Exercise some personal responsibility.

Dirty Crap To Say In German
http://`cobweb.wintermute.co.uk/moviestar_europe/swear.htm`

My Grandmother was straight from the old country (Hungary, that is). Some of her funnier stories and sayings dealt with swearing in Hungarian. Unfortunately, I couldn't find a page on how to swear in Hungarian, so I had to settle for German.

YES, this page is offensive so if you have virgin ears and eyes, don't bother looking. On the other hand, I find German to be a fascinating language since much of the root of the English language can be traced to it. It is also quite guttural and can send me into fits of laughter upon hearing the right combination of sounds (remember Brother Theodore from Letterman?). Anyway, here is a comprehensive list of German sayings and their matching English counterparts. You also get a .WAV file for each of them so you too can excel in the proper and correct pronunciations. And I thought "Holtzemfrumfloppin" really was the German word for "Bra."

For the time being, my web site is down and awaiting a total make over. Look for it soon!

You can always see my past columns at:
`www.boardwatch.com`

I'm always interested in reading what you have to say and am always willing to take a look at a site... any site you think is interesting, useful or just downright strange. Let me know about them at: `cbabb@aquila.com` ◆

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We know the value of your ISP to both financial and strategic acquirers

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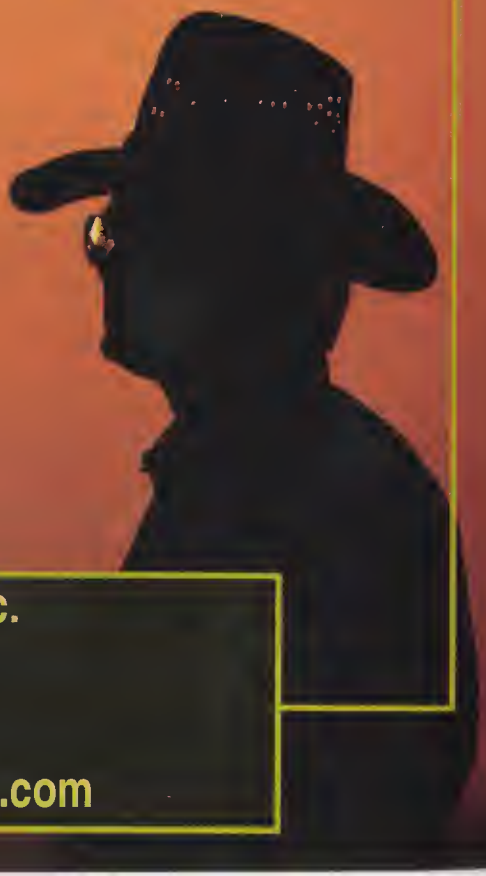
We represented GnatNet, Kingsland, GA in its acquisition by Cybergate, Inc., Miami, FL

We represented News Corp in the sale of its Delphi Customer Call Center to ZipLink, Hartford, CT

And that's only the half of it.



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LINUX REDUX by Alan Cox

PROVIDING DIAL-UP SERVICES WITH LINUX

The last article looked at the kind of hardware you need to get a stable system, this time we're going to have a look at some of the more essential tools for supporting dial-in services on Linux systems.

Alan Cox is the Technical Director of CymruNet, a leading Internet Service Provider in Wales, United Kingdom. Cox is also a member of the Linux International Technical Board and the CERT Vendor contact for Linux. He maintains the ***http://www.uk.linux.org*** *web page and leads the Linux Networking Project, the project to port Unix to shared memory multiprocessor architectures, and a project to port Linux to 8086 embedded controller systems. Send e-mail to* `alan@cymru.net`

DIAL-UP VIA DEDICATED HARDWARE

There are two common strategies used for dial-in services. The first is to use dedicated hardware such as the Ascend PMax or the 3COM (ex US Robotics) total control racks. In this set up telephone services are normally provided in blocks of 23 channels down a T-1 (30 channels down an E-1 in Europe) over coaxial cables into rack mounted units that have very high density modem and ISDN boards. Out of the back of all this comes Ethernet. These units typically do all the PPP, the routing and the tedious dial-up modem control except for authentication.

Authentication is normally provided using a protocol called *RADIUS*. This was originally created by Livingston for their Portmaster products. RADIUS is an open UDP based protocol that allows the dial-up equipment to query a RADIUS daemon to verify a login and password. If available, RADIUS passes a lot of other information, such as caller ID and connection types. The RADIUS daemon can provide a lot of information (like PPP settings), and the protocol itself is quite extensible.

Under Linux, the Livingston RADIUS daemon runs nicely and uses user/password files separately from the machine username and password. This is very important as you don't normally want everyone to log in to the machine doing the authentication. You can pick up the RADIUS daemon from `ftp.livingston.com` as well as the various Linux archives.

DIAL-UP VIA LINUX

The second approach, and one favored by many for smaller setups due to it its low cost for small numbers of ports, is to use smart serial cards and a Linux box. Some people take this further and run in excess of 100 ports off a Linux based PC. The standard PC serial card is not really that good, it's perfectly adequate for a single modem, and the newer 16550A based boards are happy handling 4 modems quite often. These cards are relatively dumb, and the processor has to do a lot of work to keep the modem fed with data and the chips happy. They are cheap, however, and should not be ignored if you just need to let a few friends access the machine or want to provide a small office with access facilities.

So called "Smart" serial cards do a lot of the processing and provide much more buffering for the PC processor. As a result the processor often just checks 100 times a second and copies blocks of data on or off any port needing attention, rather than having to handle each byte (or on a 16550A each small block of bytes). These cards also handle flow control, parity and special character recognition. Some of the high end ones designed to be used with external ISDN terminal adapters can sustain 460 Kbps on 8 ports at once.

Above this hardware you need software to handle the connections, the authentication and the protocol management. The first part in all this is *getty*, which is the program whose sole job in life is to sit and wait for calls then fire up login programs. A *ps -aux* will show a lot of running getty processes. These are the ones sitting on the console screens waiting for you to type a username. When they get a username, they run the login program and hand over control.

GETTING GETTY

The getty program that looks after the Linux console is normally *mingetty* or *agetty*. Both are simple programs with little understanding of a modem and the fun things modems like to do to you. They are used on the console as they are small and fast, and consoles behave in a sane fashion. As any dial-up user knows, modems fight dirty.

There are two getty programs typically used for dial-up. One is *uugetty*, but my favorite, by far, is *mgetty*. Mgetty is only for modems and is totally oriented to handling them sensibly. See the web page (`www.lanobis.de/service/technik/mgetty/mgetty.html`) for the technical information on this program. Mgetty is far more than a simple printer of login prompts, it drives the modem directly to allow reliable dial-in and dial-out, and to be able to monitor the modem. It supports Class 2 fax and can also recognize FIDONET connections. There is development support for incoming voice handling too. Thus with a good modem and mgetty, you have a fax machine, answerphone, and reliable dial-up service.

INIT AND INITTAB

To get mgetty listening on your modem ports you need to add it to the */etc/inittab* file. This is a list of programs that *init* (the first process run from boot) keeps running all the time. It will respawn new copies of mgetty whenever the old session dies, and of course started at boot.

The file format is documented in *man inittab*. Basically it is a set of colon delimited lines of the format.

```
identifier:runlevels:mode:command
```

The identifier is just a tag for the line, and is used so that when the file is changed, init can see what is new or deleted and what is changed. The mode is normally set to "respawn" which causes init to recreate the command whenever it dies. Other options include "wait" which is used to wait for a script to finish during boot, and "once" which runs a command once only. The command itself is a command with arguments, in our case to run mgetty.

The notion of a *runlevel* is more complex. A Linux system has 7 run levels (S,1,2,3,4,5,6). These are different machine states. Most distributions use "S" as single user mode (the mode you get by including "S" as a boot option) which is used for rescuing screwed-up machines, 3 as normal running and 6 as reboot. The runlevel field is a list of runlevels in which a command should be present. Init will kill or create commands according to the run level.

LOGIN AND PPP

Init and getty are only the start of the process. We have not answered the modem and read the first string that the user typed. To take this further we need to look at the login process. Mgetty, by default, will pass the username to the */bin/login* program. This program authenticates the users and, if successful, turns into the login shell. While this is typically something like bash or another command line interpreter for many users, it need not be. Nor do the users' home directories need to be ones they own or can write to.

In our case we need to create the users with a special shell. The *pppd* program to be precise. This is the program that sets up and handles Internet PPP protocol connections. This starts the PPP negotiations needed to pass Internet traffic and, when completed adds; the interfaces and routes necessary to make things work. By default PPPD defaults to client-like behavior and you will need to specify the *-default* option to stop it from rearranging your routing table the wrong way. PPPD itself isn't an ideal login shell as it is difficult to make it pick addresses for given interfaces. Instead there is a front end to PPPD called *ppplogin* which can be obtained from Sunsite (**http://sunsite.unc.edu/mdw/linux.html**) and other archives. This reads configuration files to decide what addresses to use on each port and to allow some users to have static IP address allocations.

If your users also need to be able to do other things on the machine you have three choices. The first is to use a normal shell and require they start ppplogin if they wish to use PPP. The second is to give them two user names (often this is *user* and *Puser* for the PPP dial-up name). The third commonly used choice is to allow users other access except for shell access, so that they can, for example, upload web pages but not type arbitrary commands on the server. To allow that level of access you will need to add PPPD or ppplogin (whichever you chose) to the */etc/shells* file. This file lists all the shells that are considered to be "normal users." If they are not listed in that file, the users will not be able to use services like FTP.

SUPPORTING SLIP

Some sites still provide for, and some customers still ask for, SLIP access. In theory PPP made SLIP obsolete. In practice, however, many DOS systems and older UNIX setups have SLIP, but no (or no useable) PPP stack. Thus supporting SLIP is also required. A program called *dip* handles dial-out SLIP connections but does a very poor job for dial-in. A program called *sliplogin* exists for this, and works much like ppplogin (in fact ppplogin is derived from it). Usefully they share configuration files, so you can use the same addresses for SLIP and PPP users. Sliplogin starts up the SLIP protocol on a given port and sits around until the line is dropped. At this point it dies, and init spawns a new mgetty process to reinit the modem and listen for callers.

That I hope gives you at least the right places to look to set up dial-up services. A complete recipe would be far longer, but the PPP-HOWTO, SLIP-HOWTO, NET3-HOWTO and *Linux Network Administrators Guide* can all be obtained from Sunsite or in paper form. *The Network Administrators Guide* comes from O'Reilly and the How-To's can be found with most Linux distributions or in the various *Dr. Linux* and *Linux Bible* collections of documents.

OK, enough about modems.

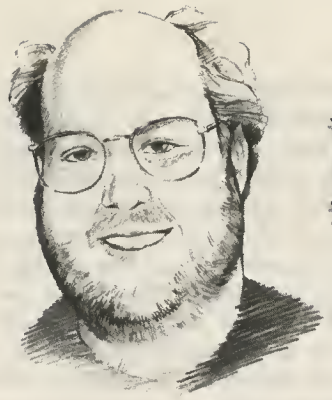
COMMERCIAL OFFICE SUITES AND OTHER NEWS

Various interesting things have been developing on the commercial software front. One of the really good bits of news from my point of view is the pending release of Applix 4.3 by Red Hat Software (**www.redhat.com**) and Applix (**www.applix.com**). Red Hat has been selling Applix for a while, but it is not a cheap package. Most users haven't been using the full power of Applix with its database integration, groupware application development and other features. The new release includes a sensibly priced (probably $199) edition without these components but with all the spreadsheet, drawing program, word processor and HTML designer facilities that people actually need, as well as import and export filters for things like Word 6 — things the current Applix release badly needed.

Applix isn't the only option for an office suite. Caldera (**www.caldera.com**) have been selling Word Perfect for Linux for a long time, and have also released Corel Draw for Linux. Star Division (**www.stardivision.de**) in Germany, whose Star Office product is well known to OS/2 users, has been releasing beta tests free for non-commercial use onto the Internet (again on Sunsite.). These beta releases require you posses Motif 2.0, libraries which can be picked up from various vendors including MetroX (**www.metrox.com**), Red Hat, and others, as well as coming as standard on some CD distributions. I'm looking forward to seeing a final release. I wonder when the market size will force Microsoft to port Word and friends to Linux. I also wonder if anyone will care.

Caldera also announced what was a surprise to many of us — that they will be providing not just the Netscape Navigator client with Caldera OpenLinux, but that the "full" OpenLinux release will also include Netscape's server product.

Until the next time, when we'll look at the different web servers available for Linux....◆



ISP TECH TALK by Avi Freedman

YOUR OWN ADDRESS SPACE

Every machine on the Internet has to have an IP address. Further-more, it has to be a "globally routable" IP address—an address that is allocated to you by someone and that is routed by your provider to the rest of the Internet (meaning all of the providers on the Internet know to send data to your provider to get to you).

So how do people get address space? If you last looked at IP space allocation a few years ago, things might have changed quite a bit. And they're going to change even more in a few months for residents of the Americas, as providers start to have to pay money for address allocations.

The bottom line is this: Unless you're multi-homed (connected to two providers) and have already received and allocated to your customers a fairly large amount of address space, you're going to get your IP address space from your "upstream provider"—the provider who sells you your dial-up, ISDN, 56K, T-1, or other type of Internet connection. They get their address space either from their upstream providers or directly from either the IANA or the regional registries.

If you don't like that answer, and think that you want or need your own address space, read on...

THE REGISTRIES

The IANA, which holds as a global trust the integers from one to roughly 4 billion (2^{32}, to be exact), delegates address space to the world—basically, to the regional IP registries. It is unheard of for ISPs to directly get address space from the IANA. The last entity to do so was @Home, which got a /14 (more on what a "/14" is later) based on extensive engineering and growth plans. Even then, the InterNIC actually made the entries in their tables at the IANA's direction.

The InterNIC, RIPE, and APNIC are the "regional registries." RIPE covers Europe (`www.ripe.net`) and APNIC covers the Asian Pacific (see `www.apnic.net`). The InterNIC currently covers "everywhere else," including the US and the Americas, and also hands out address space to global ISPs. This is the same InterNIC that currently registers the .com, .org, .gov, .mil, .edu, and .net domains. But that's probably going to change in a few months when Network Solutions, which owns the InterNIC, spins off the IP Registry into a new non-profit entity called ARIN (`www.arin.net`).

A fairly large warning: Under the ARIN proposal, the new ARIN registry will be *charging* for IP allocations. There is currently no charge for IP allocations from the InterNIC, although you do have to pay for allocations and/or "membership" in RIPE and the APNIC.

Addresses given out directly by any of these registries are generally at *least* 32 Class Cs wide (or long)—meaning, 32 Class Cs in a "row." Anything less wouldn't be "globally routable." More on all of this shortly.

"SLASH" NOTATION AND CIDR

To talk about IP allocations, it's necessary to understand the modern terminology used to talk about blocks of IP addresses.

It used to be that IP address space was allocated in hunks called *Class A, Class B,* and *Class C*. Class A networks have almost 17 million (2^{24}) addresses; Class B networks have 65,536 (2^{16}) addresses; and Class C networks have 256 (2^{8}) addresses. Actually, those numbers are high, since a certain percentage of the numbers in any network have special meaning and aren't available for hosts.

Those hunks are called *Classful* networks because of the Class X nomenclature. Currently, address are allocated in, and people talk about address space using CIDR (Classless Inter-Domain Routing) notation.

One of the many phases of "The Internet's Going To Explode" was happening in the early 1990s. The basic problem was that Class Bs were way too large for some and slightly too small for others. There was some worry about running out of address space because of "inefficient utilization" of giving out all of those Class Bs (if someone needs 130 Class Cs-worth of address space and they get a Class B, there are 126 wasted Class Cs worth of space). But the real problem was that the routers of the Internet were about to explode and be unable to continue making the Internet work—primarily because the number of routes on the Internet was growing exponentially (more details about this in a later column).

So the tireless worker/members of the IETF (`www.ietf.org`) came up with a plan: Extend the subnet idea to the entire 32 bits of address space. Subnets are sub-sections of a Classful network. They are specified using the "subnet masks" that you've probably all seen. 255.255.255.192, for example, represents a

Avi Freedman started Net Access, the Philadelphia area's original ISP, in October of 1992. Net Access is currently a regional ISP, with more than 80 downstream Internet providers and dedicated-line customers, and thousands of dial-up and web-hosting customers.

Avi also is Cofounder of a new national ISP, Net Access USA, which focuses on dedicated connectivity for ISPs. For information, see `www.netaccess.net`.

Avi has been very active on the inet-access mailing list and is a vocal proponent of the continued viability of startup and existing ISPs. He is also on the ISP/C Board as Director at Large. ISPs can join inet-access by sending e-mail to `inet-access request@earth.com` with SUBSCRIBE in the subject. Avi can also be reached at `freedman@netaxs.com` or http://www.net

FIGURE 1

CIDR NAME	NUMBER OF IPS	NETMASK	NOTES
/32	1	255.255.255.255	
/31	2	255.255.255.254	
/30	4	255.255.255.252	
/29	8	255.255.255.248	These are still called subnets
/28	16	255.255.255.240	
/27	32	255.255.255.224	
/26	64	255.255.255.192	
/25	128	255.255.255.0	
/24	256	255.255.255.0	The size of a Class C
/23	2*256	255.255.254.0	
/22	4*256	255.255.252.0	
/21	8*256	255.255.248.0	
/20	16*256	255.255.240.0	
/19	32*256	255.255.224.0	The smallest "globally-routable block
/18	64*256	255.255.192.0	
/17	128*256	255.255.128.0	
/16	256*256	255.255.0.0	The size of a Class B
/15	2*a/16	255.254.0.0	
/14	4*a/16	255.252.0.0	The largest size generally allocated
/13	8*a/16	255.248.0.0	
/12	16*a/16	255.240.0.0	
/11	32*a/16	255.224.0.0	
/10	64*a/16	255.192.0.0	
/9	128*a/16	255.128.0.0	
/8	256*a/16	255.0.0.0	The size of a Class A

64-IP "subnet" of a Class C-sized chunk. A 255.255.192.0 represents a 64-Class-C-sized chunk of address space.

So, instead of allocating networks in chunks on byte boundaries, allocate networks sized any power of 2 from 1 to 32 bits.

They called this plan *CIDR* (Classless Inter Domain Routing). The *CIDR FAQ* has more details on this — you can find it at `www.ibm.net.il/~hank/cidr.html`. This is *mandatory* reading for any ISP.

CIDR NOTATION

CIDR notation names a network by simply specifying how many bits, out of 32 possible bits, that network has.

So a Class C in "CIDR notation" is a /24. A Class B is a /16. A Class A is a /8. If you want to tell roughly how many useful IP addresses are in a CIDR-notation network, just subtract the number of bits after the slash from 32 and raise 2 to that power.

So, a /24 has 24 bits of network. There are 32 bits total in an IP address. 32 minus 24 bits is 8 bits. That isn't "network bits" is "host bits" (i.e. useful IP space). $2^8 = 256$.

If you're still confused, see *Figure 1*.

Remember that we said that address space can now be talked about (and handed out) in arbitrary-sized chunks which are 2 raised to some power from 1 to 32 in size. In practice, /8 is the smallest chunk that's ever been "allocated" and /24 is the smallest that's ever been "allocated" by a top-level registry (but ISPs often allocate much less than that to dial-up or even dedicated LAN customers).

The smallest network you can talk about a /32 (a single host)— in fact, the InterNIC even once accidentally allocated a /33 (I'm not sure I understand the details on that one...) Talking about anything bigger than a /8 isn't very useful, as it's extremely unlikely that such a beast would be allocated to any entity.

ONE CONFUSING THING ABOUT CIDR NOTATION

The terminology gets confusing.

"Less than" does not necessarily mean "smaller than." If you want to talk about CIDR networks that are larger (in number of IP addresses contained) than a /24 (the old Class C size), you might be tempted to say "bigger than" a /24. But there'd be some confusion about whether you meant a /27 or just a bigger network (more IPs). And a /27 actually contains *fewer* IP addresses than a /24.

The smaller the number after the slash, the bigger the network is in terms of actual /32s (host addresses) contained.

If you're tempted to say "bigger than" some classless network, don't. Say "longer than." Ditto for "shorter than" instead of "smaller than." It's less confusing.

A LITTLE BIT ABOUT ROUTING

OK, so address space is now variably-sized. And you need address space. Four or five years ago, the NIC would have given you a Class C. But now they won't give you a /24. Hey, what's up?

Well, Sean Doran, in 1995, decided that Sprintlink's routing tables were filling up—and furthermore, that they really wouldn't be able to continue to expand at the rate that they had been previously. So he issued an edict: At the end of 1996, Sprint was going to filter anything "longer than" a /19 from "recent address space." This meant that anything that was currently being allocated wouldn't be affected, and "the Swamp" (the block of old Class Cs and older CIDR allocations) would not be filtered on. Only new allocations (205/8 and higher) would be affected. He wanted to prevent a problem from happening (exhaustion of routing table space in the core routers of the Internet). Actually, there were loopholes (if you were a "customer" rather than a "peer," Sprint would - and still will - hear the routes, or 'route announcements'). I'll have a column shortly about how the Internet really works (peers, customers, route announcements,...) and we'll use the Sprint route filtering as a case study.

You can search the inet-access; nanog; cidrd; or big-i mailing list archives if you want to learn more now.

The current state of affairs is that multiple providers filter on blocks longer than a /19 or, smaller than 32 contiguous /24s. If the InterNIC or anyone else gave you that much space that was independent of your upstream provider it'd be useless, since hosts with those IPs wouldn't be able to reach much of the Net.

The simple reason for this is that unless route announcements (which correlate to the networks you're assigned—an ISP which speaks the 'BGP4' active routing protocol "announces" the address spaces that it and its customers use) propagate to almost every other provider on the planet, remote sites won't be able to "get back" to hosts with IP addresses that have no matching route announcements.

So when people talk about "globally routable" networks (address space), they're talking about /19s and longer.

THE RULES

The rules for getting your own address space allocations can be frustrating, but they are (despite grumbling from some corners)generally accepted by "the Internet community."

You need to *already have used* about a /19 worth of address space (not necessarily all one network —a bunch of /24s, /23s,... can add up to be a /19 worth of address space).

IP Registries

Region	Organization	URL
North and South America	American Registry for Internet Numbers	www.arin.net
Europe	Reseaux IP Europeens	www.ripe.net
Asia Pacific	Asia Pacific Network Information Center	www.apnic.net

For Additional Information

The CIDR Daily Report	**www.employees.org:80/~tbates/cidr-report.html**
Resources for ISPs	**www.ra.net/isp.html**
The ARIN Discussion List	Send mail to: **naipr-request@arin.net** or **majordomo@arin.net** SUBSCRIBE NAIPR in the body.

What does "used" mean? You have to have "allocated" to customers that much space, as efficiently as possible, and you have to have informed the InterNIC (or your regional registry) of those allocations by using *rwhois* or *SWIP* (more on those shortly).

You also have to be multi-homed—connected to at least two upstream Internet provider—to qualify. Since if you're multi-homed, there will be an extra route in the global routing table *anyway*, allocating you your own address space doesn't really hurt.

Why is there going to be an extra route anyway? Well, if you have a /20 out of one provider's /17, for you to get "Internet connectivity" from your second provider, the second provider must advertise your /20 "more specifically" than the other provider's /17. (This means that your second provider could wind up carrying almost all of your incoming traffic, but that's another topic...)

In any case, if you're multi-homed, your address allocations will have to be represented in the global routing table anyway—so giving you your own address space doesn't explode the routing tables any more than just being multi-homed does.

These rules are also called "allocation guidelines" and are used by the allocating registry to decide whether you qualify for provider-independent (PI) space, and if so, how much.

SWIP

The way that you tell your registry (if your registry is the InterNIC) who you've administratively delegated address space to is with ***SWIP*** or ***rwhois***. Most providers use SWIP (the Shared Whois Project). To "SWIP a block" means to fill out a SWIP template and mail it to the NIC. Rwhois is a server that you run on your network, which responds to address allocation queries from the InterNIC and the rest of the world. The idea of running a rwhois server is that the NIC doesn't have to keep track of all of your SWIP templates and feed them into their whois server — they just point to your rwhois server when anyone asks about address space they've allocated to you. Rwhois was very difficult to install and run for quite some time, but it looks like it's approaching usefulness for most ISPs. So remember, you have no chance of getting address space from the NIC—or probably even more address space from your current provider—unless you supply timely and accurate SWIP information to them. Your provider, needs this information to be completed to get more address space of their own.

For current information about SWIP and rwhois, check out `www.internic.net`.

SUMMARY

It all seems pretty complicated, but it's the best we've got right now to balance the need for ISPs as they grow to evolve into "having their own IP space" against the need to both conserve routes in the core routing tables and preserve IP space in general.

If you do it all right, you'll have to renumber just once. It may seem unfair that older providers didn't have to go through the renumbering process, or that you may have to renumber into someone else's space if you have to switch from one provider to another because of poor service before you're large enough to just renumber into your own space, but unfortunately that's life on the Net now.

FUTURE COLUMNS

Look for a fairly detailed discussion of IP routing next month—and we'll move on from there to talk about BGP and a bit about how the Internet actually works...◆

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CONSUMMATE WINSOCK APPS

by Forrest Stroud

WHO IS THIS STROUD GUY ANYWAY?

Each month I receive quite a few letters from readers who are interested in the person behind The CWSApps List. I haven't updated my personal home page in more than six months, so I guess I shouldn't be surprised by the ever-increasing number of letters. If you want to know more about yours truly, read on; otherwise, feel free to skip ahead to the reviews — I'll try not to take it too personally...

The applications reviewed here and many more are available on Stroud's Consummate Winsock Apps List, **http://www.stroud.com** and **ttp://cws.iworld.com**.

Forrest H. Stroud is a recent graduate of The University of Texas at Austin. The Information Systems and Data Communications Management major is currently working in College Station, Texas as a web developer for Mecklermedia Corporation. Stroud can be reached at **neuroses@tcac.com**.

Just short of a year ago I was married to the woman of my dreams, Joanne Whitehead. The magical date was June 7, 1996, only one short month after Joanne had graduated from the University of Texas at Austin (I still had two more courses to complete). After the wedding, we packed our bags and headed across the state to an entirely different world. The locale, College Station, is home to the Texas A&M Aggies (the die-hard enemies of us Longhorns). Despite the burnt-orange blood that runs deep within her veins, Joanne is now attending the Texas A&M School of Veterinary Medicine and will receive her DVM as a graduate of the class of 2000.

As for me, I finally finished those two extra courses and graduated. After our move I started out freelancing in College Station, but it wasn't long before opportunity came knocking on the door. Mecklermedia bought the rights to The CWSApps List and together we will be working to take the list to new levels. As for entertainment, while College Station might be lacking with fun things to do, we have our own personal zoo to keep us happy (and busy). Roemer is our one-year old chocolate lab cross, Svoda Pop is our six-month old Dalmation pup, and Bo Miggy and Odie Pez are our two adorable kittens. With two cats and two extremely energetic dogs there's never a dull moment at our house.

That about wraps up the last six months. I'm going to try to make an update soon to my personal page with pictures of our wedding and of the zoo. If you're not bored out of your mind yet, you might want to take a look at it: **www.tcac.com/~neuroses**. And as always, feel free to send any feedback or questions to **neuroses@tcac.com**.

RealAudio was the first client released on the Net that allowed users to download and run audio clips in real-time — i.e. the sound bytes run *while* being downloaded, not *after*. Since its initial release in June of 1995, RealAudio has continually evolved to stay one step ahead of the competition while still managing to retain its freeware status. Its affordability and reputation for outstanding audio quality are two of

RealPlayer for Windows 95

real audio video

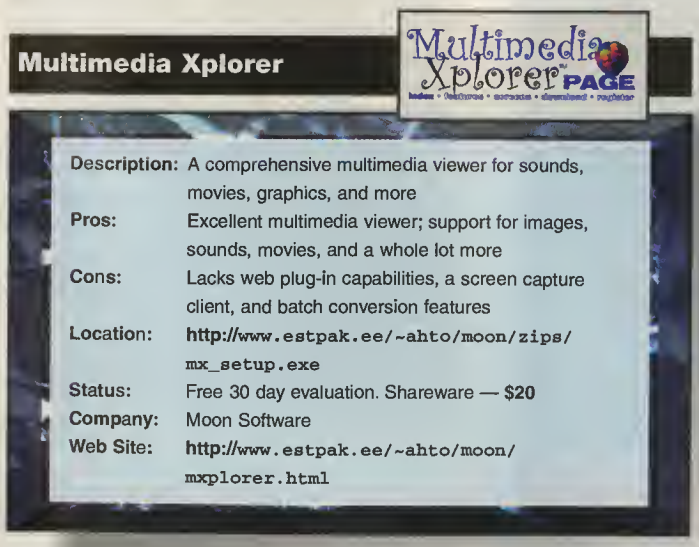
Description:	Real-time audio and video on-demand streaming for the web
Pros:	Outstanding real-time audio and video on demand. Server, encoder, and player programs all available
Cons:	RealPlayer clips must be run from a specialized server in order to utilize real-time streaming technology
Location:	**http://get.real.com/products/player/download.html**
Status:	Freeware. Commercial RealPlayer Plus release also available — **$29.99**
Company:	Progressive Networks
Web Site:	**http://www.real.com/**

the reasons that RealAudio has become the most popular client of its type on the Net. Seeking to capitalize on its potential and augment its popularity, Progressive Networks (developers of RealAudio) worked with Iterated Systems (developers of ClearVideo) to integrate ClearVideo's real-time on-demand video streaming technology into the latest release of RealAudio. This release, now called RealPlayer, makes it possible to view both audio and video clips on the Web at the same time. Considering the size of many sound clips (250+ KB not uncommon) and video segments (2+ MB), as well as the sluggishness of the Web, the audio- and video-on-demand streaming made possible by RealPlayer is indeed a blessing for many users. Matched in capabilities by only VDOLive and StreamWorks, RealPlayer looks to have the early lead in what will likely become an extremely intense race for market share. While RealPlayer's advantage is primarily due to the large number of sites that serve RealAudio and RealVideo content, another important factor has been the massive improvements made to the client in its two years of existence.

The RealPlayer client that combines RealAudio and the new RealVideo technology is a far cry from the RealAudio player introduced nearly two years ago. RealAudio's mainstay has always been on-demand streaming of audio, but recent features like live broadcast capability, improved sound quality for 28.8 Kbps (stereo sound) and faster net connections (near-CD quality), improved delivery technology, the real-time on-demand video capabilities of RealVideo, and similar added features have taken this client to new levels. Additional features that have recently been implemented include bandwidth negotiation (for customizing audio quality to your connection speed),

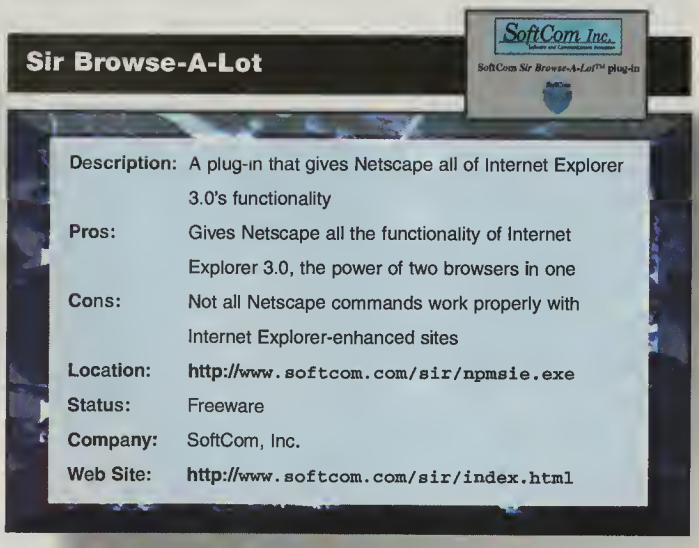
multicasting support, pseudo-streaming for small audio files, multimedia synchronization, and Java integration capabilities. While there will continue to be a freeware version available on the Net, a **$30** commercial version called RealPlayer Plus has also been released that improves on the freeware client by offering PerfectPlay, a feature that makes possible near-CD quality audio and full-motion video even at speeds as low as 28.8 Kbps. RealAudio was the first real-time audio client to offer plug-in support for Netscape. Today, RealPlayer adds to these capabilities with inline web support for audio- and video-on-demand content. Both Netscape and Internet Explorer will automatically play *.ra, *.rm, and *.rpm files — sound and video clips are not only run seamlessly from your browser, they begin playing almost immediately after clicking on the file.

While listening to and viewing RealPlayer files is just great for the majority of us, there will inevitably come a time when some users want to create and serve their own files. Thankfully, Progressive Networks has already developed clients that will create (RealPlayer Encoder — `www.realaudio.com/hpproducts/encoder`) and serve (RealPlayer EasyStart Server — `www.real.com/products/server`) RealAudio and RealVideo files. The encoder client is freeware and allows you to create and host your own clips utilizing pseudo-streaming capabilities on any type of web server. However, to run clips on the web in real-time you'll need to purchase one of the EasyStart servers, which begin at $295 (you can also download the server for a free thirty day evaluation). Overall, RealPlayer is a class-act app that will appeal to anyone who has ever had to wait an eternity just to enjoy a thirty-second audio or video clip. And with the prevalence of RealAudio and RealVideo files on the web, this is one app you'll definitely want to have for your online daily web surfing. There's even a *TV Guide*-type listing called *Timecast* (**www.timecast.com**) that lists all the RealPlayer content currently available on the Net. While there is definitely room for improvement in the quality of audio and video streaming technology, RealPlayer shows that you don't need to wait for the arrival of cable modems and ADSL lines to enjoy real-time true multimedia web content.



Multimedia Xplorer is an exciting new one-of-a-kind, all-in-one 32-bit multimedia viewer. Whereas in the past you would need a separate application to view each type of image, sound, movie, icon, etc., now all you need is Multimedia Xplorer. The client provides an easy-to-use click n' view interface with support for a wide range of image (JPEG, GIF, PNG, TIFF, BMP, WMF, EMF, ICO, and PCX), video (AVI, MPEG, MOV), sound (WAV, MID, RMI, AIFF, AU, SND, MP2), and cursor (CUR and animated cursors, ANI) formats. Additionally, the Xplorer can extract icons for you from ICO, ICL, DLL and EXE files. There's a built-in file manager for quickly locating multimedia files, and if you need a little more help than the file manager offers, you can also put the client's Multimedia Detective to use. It searches through your hard drive and folders for multimedia and image files and then displays the results for you. Accessing any file from the detective is one simple mouse click away. Multimedia Xplorer also offers a whole lot more than just viewing capabilities. A Logo Changer option allows you to change the default startup and shutdown logos for Windows 95 and NT. The unique QuickPicker and Destinations features allow you to save your most commonly used folders for quick access. Additional features include a File Filter (for showing only files of a certain type), drag n' drop support from the Windows Explorer, a built-in slide show editor, manual or automatic slide show capabilities, and the ability to set any image as your desktop wallpaper.

At only **$20**, this is one application that you'll definitely want to try out and, more than likely, continue to use on a regular basis. However, there are some features currently absent from the client that would make Multimedia Xplorer even better. First, a plug-in version would help distance the Xplorer fron its closest competition, Thumbs Plus, and would also make the app an invaluable partner to your favorite web browser. Perhaps even more importantly, it would allow you to get rid of some excess applications by consolidating your collection of plug-ins. Second, an integrated screen capture client for bringing desktop images and movies into the Xplorer would be extremely useful. Finally, while the Xplorer does allow you to individually convert a file from one type to another, there are no batch conversion capabilities for automatically converting a group of files. Overall, with support for more multimedia types than Thumbs Plus and a cheaper price tag ($20 compared to $50), Multimedia Xplorer is unquestionably the best application currently available for handling nearly every single media type encountered on the web. You heard it here first — this may well be the multimedia answer to Quick View Plus!



While the majority of us are still using Netscape as our primary browser, it's hard not to notice the vast improvements made to Internet Explorer over the last year. And for the first

time a browser other than Netscape offers proprietary features worthy of garnering support from die-hard users of the competition. If you've ever considered jumping the fence to see if the grass really is greener on the Microsoft side, you should first try out SoftCom's plug-in for Netscape (3.0 and later) called Sir Browse-A-Lot. As long as you have installed copies of Internet Explorer 3.0 and Netscape 3.0 (or later), you can use this plug-in to view Internet Explorer-enhanced sites, run VBScript and ActiveX controls, view sites that incorporate style sheets (Netscape 4.0 can also do this without the Sir Browse-A-Lot plug-in), and much more. Sir Browse-A-Lot allows you to perform all of these activities from within the Netscape environment and without having to load Internet Explorer. The only real downside is that once the plug-in begins, some of the Netscape functions won't operate as they normally do (only when you are visiting Internet Explorer-enhanced sites). For example, using the back button returns you to the page prior to the one that first made use of the plug-in rather than returning you to the previous page viewed. This also applies to other options like the forward button, view source, and print document command. Aside from this minor negative point, Sir Browse-A-Lot will appeal to those who want the best of both worlds — the great interface and features of Netscape, as well as all the functionality of Internet Explorer. Sir Browse-A-Lot is also useful for web masters who want to take advantage of Internet Explorer's proprietary features but at the same time also want to offer Netscape users full access to their sites.

How would you like to take up to six of your closest friends on a cruise through Netscape or Internet Explorer? How about being able to talk to associates without needing to know their Internet Protocol (IP) address — much less what an IP address even is? PowWow gives you the opportunity to do both of these tasks and more. By registering yourself with the PowWow server, PowWow users can contact you for text-based (and now voice-based) one-to-one conversation — all they need to know is your e-mail address! Users can also send files to each other while conversing. PowWow is a dramatic improvement over clients like WinTalk and Sticky Notes, which force you to know the IP address of the person with whom you want to communicate. As with VocalTec's Internet Phone, even users with dynamic IP addresses can send *and* receive calls.

PowWow32 3.0

Description:	Dynamic text and voice-based communication as well as web cruising
Pros:	Conversation without the need for knowledge of IP addresses, children's version now available
Cons:	Cruises only work with Netscape or Internet Explorer
Location:	**ftp://apache.tribal.com/pub/ftp/**
Filename:	pw????.exe
Status:	Freeware
Company:	Tribal Voice
Web Site:	**http://www.tribal.com/powwow**

If the text/voice-based conversation gets old after a while and adventure beckons, try out PowWow's cruise control feature. By launching a cruise, you assume leadership of up to six followers. Netscape (or Internet Explorer) will launch on each machine, and, as the leader, you are able to call the shots and take the others on a tour of your favorite Internet sites. Additional new features, including a 50-user conference mode, a white board for collaborative drawing, and half- or full-duplex voice-chatting capabilities, add to an already stacked communications feature-set. Additionally, there's a separate version of PowWow that has been released specifically for kids. PowWow for Kids is designed to allow youngsters (up to age 13) to chat in a protective environment that prevents access by prowling adults who lack the best of intentions. Check out the Kids PowWow page (`www.tribal.com/kids.htm`) for more information. For all of your text- and voice-based chatting needs, as well as your cruise control cravings, PowWow is *the* client of choice.◆

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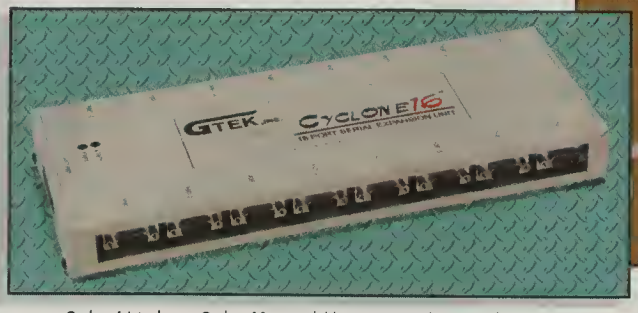
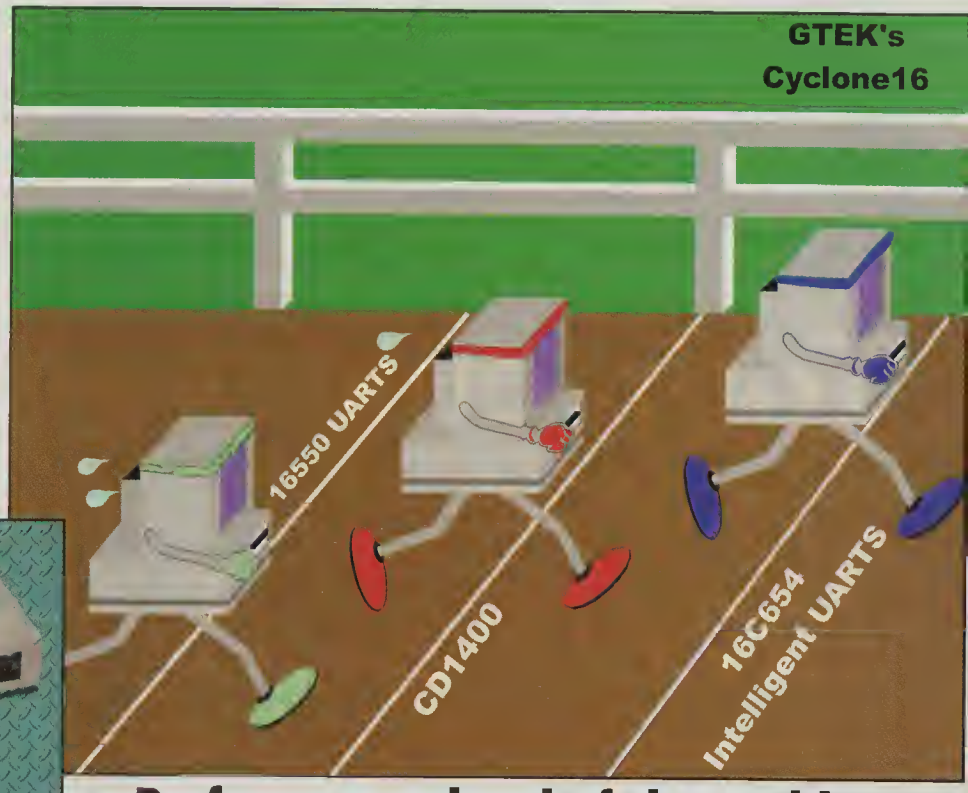


Cyclone16 is shown. Cyclone32 is available as an upgrade or complete unit.



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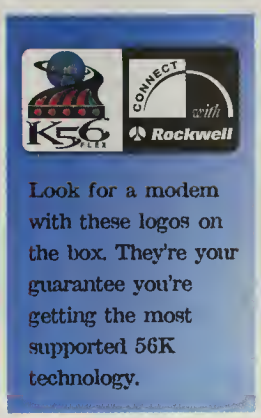

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TUCOWS

Scott Swedorski

ONLINE GAMES

Internet gaming has come a long way since the days of table tennis and Pong on the old Atari. As the years have passed, we've seen a stunning variety of TV and computer-based games. The latest craze is the explosion of online gaming over the Internet.

Scott Swedorski is president and founder of TUCOWS, The Ultimate Collection of Winsock Software. He lives in Flint, Michigan with his wife, Vicky and 2 daughters, Emily and Ashley. After joining the army at the tender age of 17, Scott received his degree in Computer Information Systems from Mott College, and received an Honorable Discharge after 8 years service. Scott welcomes input from Internet users and software developers at tucows@tucows.com.

Online games, like PC and ColecoVision-style games, started with rather humble beginnings. The first games were ASCII-text based, usually role-playing games or Multi-User Dungeons — based on the "Dungeons and Dragons" formula. Later, BBS and Internet gamers were able to play chess and checkers in ASNI and RIP-based platforms. Now, thanks to faster modems and better compression/streaming technologies, highly-graphical aerial and space combat games have been developed.

While these new types of Internet games may offer better graphics and stimulation, they do require more from your system. Internet games typically require Windows 95 Pentium PC, 10-30 MB of disk space and a minimum of 16-32 MB of RAM. If you're not running at least at 28.8 Kbps it's definitely time for an upgrade (unless you *want* to settle for Pong).

Another new component to the online gaming programs is Microsoft's DirectX. DirectX is a set of Windows drivers, developed to provide Windows 95-based programs with high-performance, real-time access to available hardware on current computer systems. DirectX runs about 3-6 MB and it is required for a lot of the new graphically-intensive games.

Developers are finally learning how to write programs for modem users and not for the privileged few who have dedicated T-1 connections All of the games listed below work marvelously on a 28.8 Kbps modem. I played SubSpace (see below) on a T-1 and I noticed that it was too fast, and the response time made it to difficult to play.

My prediction: Watch for online games to become bigger, faster and more detailed, requiring ever more system resources. They will also be easier to play, more accessible and more varied.

WINDOWS 95 SOFTWARE

SubSpace is a fast-paced shoot-em-up space game played entirely over the Internet with live opponents. You can pick up "powerups," improve your ship as you go, and chat with other players. After you pick one of six different ship styles, each with a different configuration, you are dropped into a maze-like outer space world, where you play with up to 100 people on each

SUBSPACE

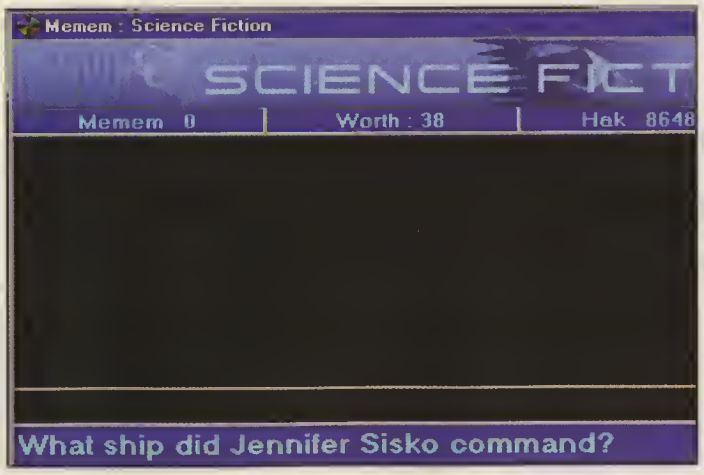
Version Number: 1.21
Byte Size: 2,281,321
License: Freeware
Author: Virgin Interactive Entertainment, Inc.
Required: DirectX installed
Home Page: http://www.vie.com/sniper

"zone." The zones vary from Chaos Zone, a free-for-all, to the Turf Zone, where your team's goal is the taking and keeping of territory. There are currently 6 zones available to players, and the graphics are excellent.

SubSpace plays so flawlessly on a 28.8 Kbps modem connection that it's hard to believe that you are actually online. You pick up powerups to make your ship better as you go on, increasing your weapons, your energy recharge rate, speed, maneuverability and much more including single use special items. SubSpace is similar in some ways to the old Asteroids game, except you also have other players actively trying to shoot you down. Flying is a challenge, and takes some practice to perfect.

NETRIVIA

Version Number: 1.30
Byte Size: 4,145,172
License: Shareware
Cost: $39.95
Author: Joycom Interactive
Also Available: Windows 3.x
Home Page: http://www.nettrivia.com/nettrivia



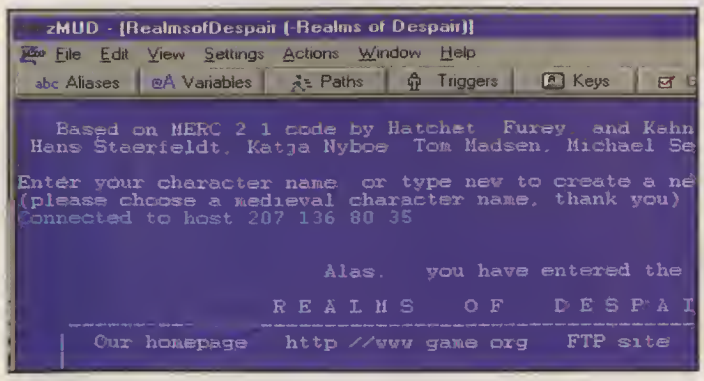
NetTrivia permits players to access 11 topic-specific areas to compete and answer trivia questions while enjoying real-time online chat in a graphical environment. The game is unique in several respects in that players not only answer questions, they may add new questions to the game, ensuring a constant source of new questions for trivia fans. The neat part is that you can play in your own living room against users from around the world. The players are friendly and welcoming, and the game is designed to not only be competitive, but social as well. The Windows client includes an easy-to-understand layout, as well as special-effect sounds, and a Java version is available for direct play through the Web (`www.nettrivia.com/nettrivia/java/index.html`). NetTrivia is free to use for a trial period, after which you must purchase a membership to continue playing the game.

WINDOWS 3.X SOFTWARE:

ZMUD

Version Number: 4.43a
Byte Size: 953,776
License: Shareware
Cost: $20.00
Author: Zugg Software
Also Available: Windows 95 Version
Home Page: http://www.trail.com/~zugg/zmud.html

zMUD allows you to enhance and manage your favorite MUDs (Multi-User Dungeons). zMUD provides many useful tools, such as actions, macros, keys, buttons, scripts, etc., to make your MUD life easier. There is a built-in database of game locations. MUDs are role-playing adventure games, usually text-based, with a fantasy, mystery or medieval theme. A good place to try out zMUD might be Realms of Despair, a popular MUD located at `www.game.org`.



zMUD offers a feature called "path memory." You can save frequently-used travel routes and automatically play back the paths, and make up aliases to ease frequently-used commands. zMUD has "triggers" so you can set the client to automatically send a command or series of commands when a specific "trigger" action happens. There is also a "tick timer" to send a command or series of commands every few seconds to avoid disconnection time-out.

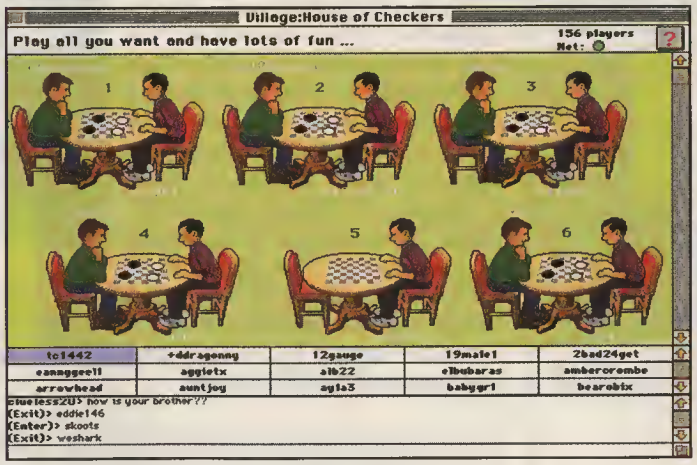
While zMUD has configurations for most popular formats built-in (aliases, etc.), it also offers custom configuration options to more experienced MUD players.

MACINTOSH SOFTWARE:

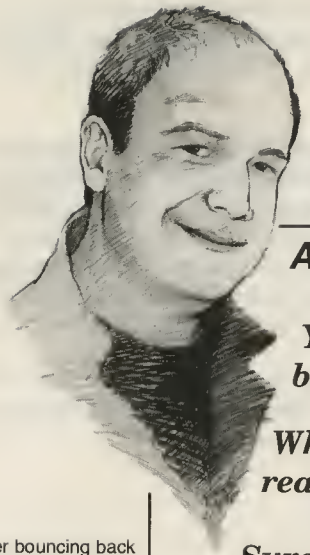
INTERNET GAMING ZONE

Version Number: 1.6.0
Byte Size: 1,337,600
License: Freeware
Author: Microsoft
Also Available: Windows 95 & 3.x
Home Page: http://www.zone.com

Excellent graphics and interactive chat, paging, and bulletin boards make this an appealing site. You can play Chess, Hearts, Bridge and more over the Internet, against real people, free of charge. When you log in to the Internet Gaming Zone, you can see tables with games in progress. Click an empty chair at a table to create a game. A Start button will appear on the table — click it to begin a game. Nervous about joining? You can watch the games other people are playing before jumping in.



Gamers can compete with other players, play against the computer, or mix and match. You may be obligated to purchase copies of some games from retail outlets before you can play them through the Gaming Zone. New games are added all the time.◆



ISP$ MARKET REPORT

Paul Stapleton

ASSESSING THE VALUE OF ISPs

You've been sweating to build your ISP business.

What's all that effort really worth?

Sure a lot of personal pride, but what would a completely unemotional third party say?

After bouncing back and forth between finance, publishing and the Internet, Paul Stapleton has landed squarely in the middle. He is Managing Director of Stapleton & Associates, an Internet focused financial consulting firm. His clients include major players as well as start ups and middle market companies in media, telecomm and software.

Paul Stapleton is also editor of ISP Report (to subscribe, **e.mail** `ispreport@mediabiz.com` or call **303-271-9960** or fax 303-271-9965; annual rate is $1950; sample issue sent on request) the newsletter of record for financial activity in the ISP industry and publisher of The Digest of Internet Financing, a web site and newsletter commenting and reporting on deals that link the buy side and sell side via the Internet. Paul welcomes comments and suggestions at `paulstapes@aol.com`. He lives in Boulder, CO with his lovely new bride.

To try to answer that question, we have (1) started this column for ***Boardwatch*** readers; and (2) created an index of publicly traded ISPs (that is, publicly traded companies that earn a substantial portion of their revenue from the sale of some form of Internet access). To accurately reflect the market, companies involved in every aspect of the Internet access business are included. There are backbone providers like DIGEX Inc. and Touch Tone America, through its GetNet International subsidiary; national consumer ISPs such as MindSpring Enterprises, IDT, Earthlink Network; wholesale access suppliers like PSINet and BBN Planet, a subsidiary of BBN Corporation; Online services that now offer Web access such as America Online and CompuServe; even local ISPs, such as Rocky Mountain Internet and Online System Services and hybrids like NETCOM that still want to do a little of everything. The index even includes two international companies; OzMail the largest Australian ISP traded on the NASDAQ, and Canada's largest ISP, iSTAR Internet inc. trading on the Toronto Stock Exchange.

"ISP owners and managers will have to consider the value of their businesses more frequently. There will be buyout offers."

The index simply reflects the marketplace today. I am not recommending you buy it or short it, or any piece of it. Since joining the trading fray three years ago, the stock prices first skyrocketed. Then crashed. Only recently have they begun to approach some degree of normalcy by traditional business valuation measures.

From December 1994 to May 1995 marquee Wall Street investment banks took NETCOM, then UUNET, then PSINet public. Investors had Internet fever and each stock was soon trading well above its IPO price. At one point they were trading at over 50 times their sales—not profits, sales.

Just as suddenly, from mid 1995 through early 1996, the stock price of ISPs tanked. Analysts predicted a major industry shakeout in which only the large telecoms such as AT&T, MCI and the RBOCs would survive. Investors in UUNET, the strongest franchise of the three, survived when management sold to MFS which quickly turned around and sold out to WorldCom. Investors in NETCOM and PSINet have yet to see those old prices again.

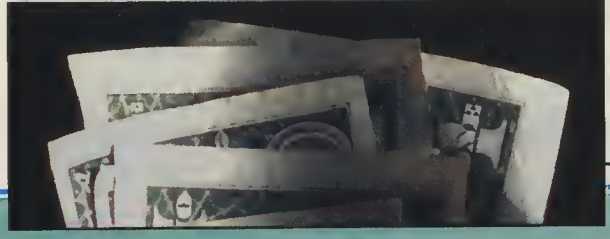
Starting about a year ago, the markets calmed down and a few well managed ISPs, with sound strategies such as IDT Corp., MindSpring Enterprises and Earthlink Networks went public. But they came out at much lower valuations, underwritten by solid investment banks, not the fair haired boys of technology finance. (They had moved on to greener pastures and were now selling over priced stock in search engine companies). Today, those recent IPOs now trade at about their offering price (except for IDT which has seen its base fall since October; "why" is a topic for another column).

Today, I think we are now entering the fourth era of ISP finance. It has three major elements:

1) The ISP industry is not going to be dominated by major telcos. Our index of publicly traded ISPs shows they grew revenue bases approximately 250% over the last year.

2) The ISP industry is segmenting into a retail, wholesale, consumer, corporate and backbone business. Our index includes ISPs from each of these categories.

3) This era will be a time of Mergers and Acquisitions (M&A). MindSpring bought PSINet's consumer business and has completed over six purchases in Florida alone. Privately held Verio Inc. raised $80 million to buy and invest in locally managed ISPs and build a backbone. Even a regional player like Rocky Mountain Internet decided to



ISP Report Market Index

SYMBOL	EXCHANGE	COMPANY	PRICE 3/12/97	MARKET CAPITALIZATION (millions)	One Year SALES Growth
AOL	NYSE	America Online Inc.	$44.25	$4,158.92	41%
BBN	NYSE	BBN Corporation	$20.13	$ 422.89	51%
CSRV	NASD	CompuServe Corporation	$10.13	$ 937.58	10%
DIGX	NASD	DIGEX Incorporated	$10.63	$ 119.90	208%
ELNK	NASD	Earthlink Network Inc.	$10.69	$ 100.92	566%
IDTC	NASD	IDT Corporation	$ 6.00	$ 125.05	225%
WWW	TSE	iSTAR Internet, Inc.	$ 3.05	$ 57.52	1,162%
MSPG	NASD	MindSpring Enterprises, Inc.	$ 8.25	$ 61.68	714%
NETC	NASD	NETCOM On-Line Comm Svcs.	$ 9.23	$ 107.40	130%
WEBB	NASD	Online System Services	$ 4.00	$ 12.39	557%
OZEMY	NASD	OzEmail Limited	$ 8.50	$ 86.70	201%
PSIX	NASD	PSINet Inc.	$ 7.13	$ 285.50	132%
RMII	NASD	Rocky Mountain Internet, Inc.	$ 2.25	$ 8.72	180%
TONE	NASD	Touch Tone America, Inc.	$ 0.94	$ 3.12	NM
			$10.37	**$6,488.27**	**321%**

Source: ISP Report, Stapleton & Associates, Company Press Releases and Financial Statements

acquire the subscribers of Online Network Enterprises in Boulder, CO in exchange for cash and common stock. The industry is moving toward more efficient operations while needing more money to market and develop new services like web site hosting and, yes, telephony.

ISP owners and managers will have to consider the value of their businesses more frequently. There will be buyout offers (on some late nights they will sound pretty good). There will be acquisition or merger opportunities.

In this column I will try to provide information to help people answer that burning question: What is a reasonable valuation?

There is no formula (yet). But there are trends.

ISPs of a certain size, with a certain subscriber base, in a certain part of the ISP business, with a particular installed technology may warrant certain valuations. My guess is most of the future M&A activity will be done by "smart money." These investor are in for the long haul, not looking to flip a hot technology stock in the public market. They will need to see a return on their money commensurate with the risk they are taking. Entrepreneurs will want to see the same. Join us here each month to take a close look, too. ◆

by Steve Stroh

Wireless Internet access, in its many forms, is increasingly of interest to Internet service providers. Many wireless digital products are intended for markets such as wireless LANs and mobile e-mail. This column will try to cover wireless data developments as they relate to ***Boardwatch's*** audience of Internet service providers.

Is it practical to use wireless digital technologies to provide Internet access? Yes! When you consider that wireless digital technologies are being driven forward by the same forces as microprocessor technology, that answer is unsurprising. Most ISPs will become involved with wireless digital in the next several years as it becomes more capable, easier to implement, and less expensive. Your customers, and your competition, will demand that you do so.

An excellent illustration of wireless digital's promise was AT&T's February 25th announcement of the development of practical wireless replacement for the conventional telephone distribution system based on copper cabling. AT&T Wireless and AT&T Labs developed this system, whose development name was Project Angel, as a way to provide local telephone service without having to build its own cable infrastructure to the home or pay rent to established telcos for the use of copper and fiber lines.

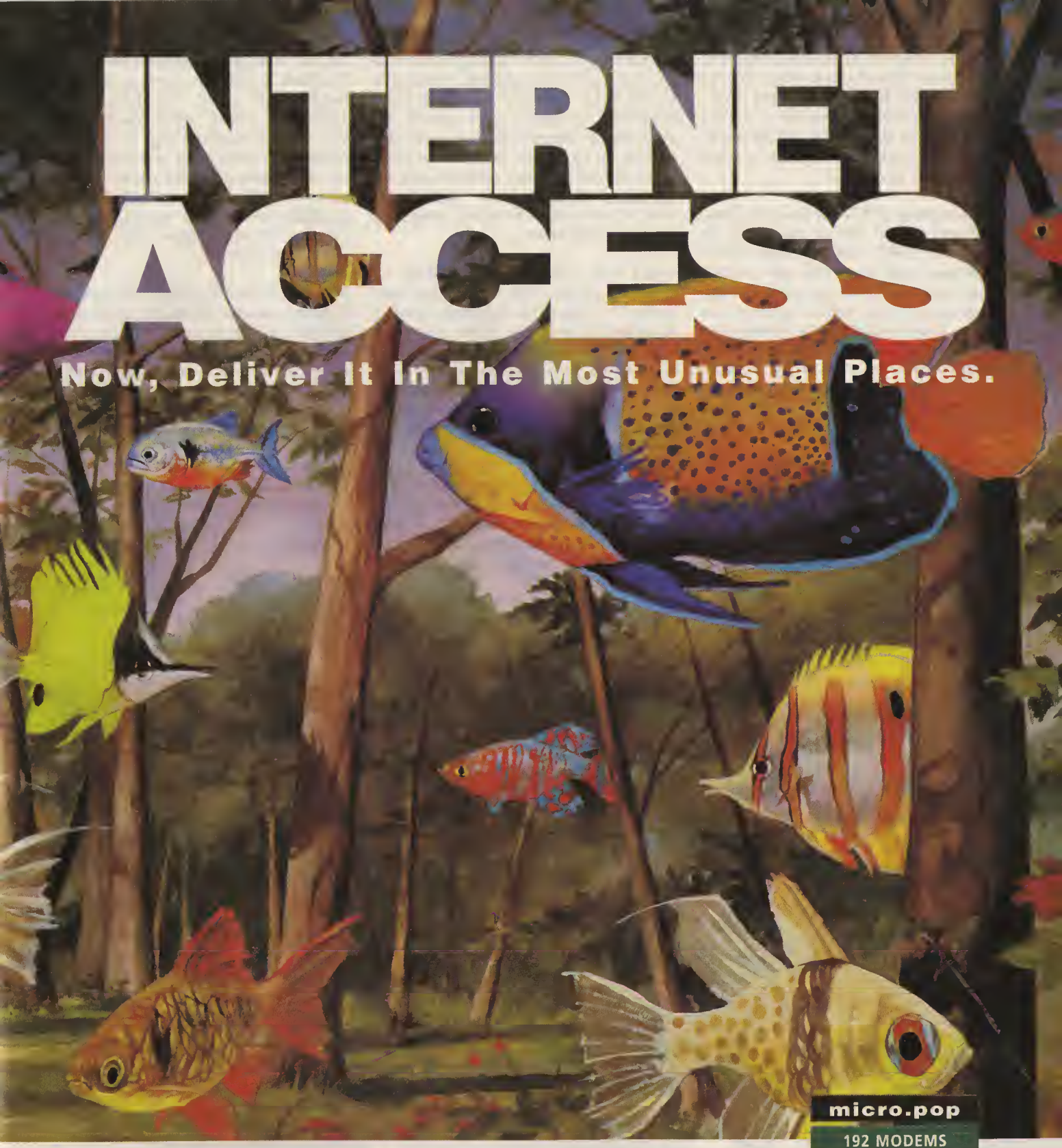
There is much to admire about AT&T's fixed wireless telephone system. One of its most surprising aspects was that it was developed in relative secrecy in Redmond, Washington. AT&T apparently developed the system, which combines several digital modulation techniques — Time Division, Frequency Division, and Space Division — to effectively service thousands of users in the 10 MHz of spectrum that AT&T obtained. The secrecy enabled AT&T to bid relatively reasonable prices in the recent spectrum auctions, obtaining allocations sufficient to cover 93% of the U.S. population.

AT&T's system relies on base stations that could service between 1,000 and 2,000 fixed wireless telephone users. The base stations will often be the same, existing base stations that service AT&T's mobile cellular telephone customers. AT&T has reserved space for the fixed wireless telephone equipment at its base stations for the past two years, and a relatively small 30-inch semi-circular antenna needs to be added to the antenna systems. The base stations are then connected to conventional telephone switching centers via fiber optic lines.

At the residence, a "transceiver the size of a medium-shaped pizza box" (18 inches square) is mounted on the side or rear of the home, and the internal telephone wiring is then routed to the transceiver. Since the home's phones would no longer be powered by the central office, a battery backup unit "about half the size of a desktop computer" can be installed. AT&T's fixed wireless telephone system provides at least 2 telephone "lines," and Internet service at a minimum of 128 Kbps. Left unsaid is how a computer in the home is connected to the transceiver — additional 10baseT wiring between the transceiver and computer is probably required. Transmissions between the base station and the home transceiver are encrypted. The system could include the ability to use the same wireless phone as a cordless phone (usage charged at "home" rates) or a mobile phone (usage charged at "mobile" rates). Also left unsaid is the probability that the Internet services will be "always connected." When there is no traffic, no "resources" are being consumed (unlike with a conventional modem connection which ties up the circuit from home to central office to ISP even if no data is being transferred at a given moment). There is also the possibility of adding a higher speed Internet connection (downlink only) by using DirecPC, the satellite-based Internet ser-

Steve Stroh learned wireless TCP/IP networking as an Amateur Radio operator (call-sign N8GNJ). He's one of the founding members of the *Puget Sound Amateur Radio TCP/IP Group* and is Secretary for *Tucson Amateur Packet Radio (TAPR)*, a national not-for-profit Amateur Radio Research and Development corporation that specializes in wireless digital communications.

Professionally, he's a NetWare and Windows NT Administrator for a large company. He's done battle with UNIX a few too many times and mostly lost, so now he's learning Linux and BSDi in preparation for his next UNIX challenge. Steve lives in Woodinville, Washington (in the shadow of Redmond) with wife Tina and daughter Merideth. He can be reached at **strohs@halcyon.com**.



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vice from Hughes Electronics. DirecPC can transfer data from the Internet to the user at 400 Kbps, but requires a conventional Internet connection to transmit data from the user to the Internet. DirecPC technology could also be used in terrestrial systems.

Formal testing of AT&T's fixed wireless telephone system will be conducted in Chicago in 1997, initially with AT&T employees, and later with the public. Those tests will help determine what the pricing of the system and service will be. Components for the system are already being manufactured at AT&T's Redmond facilities, where the system was developed. Future enhancements may include faster Internet access and full-motion video conferencing.

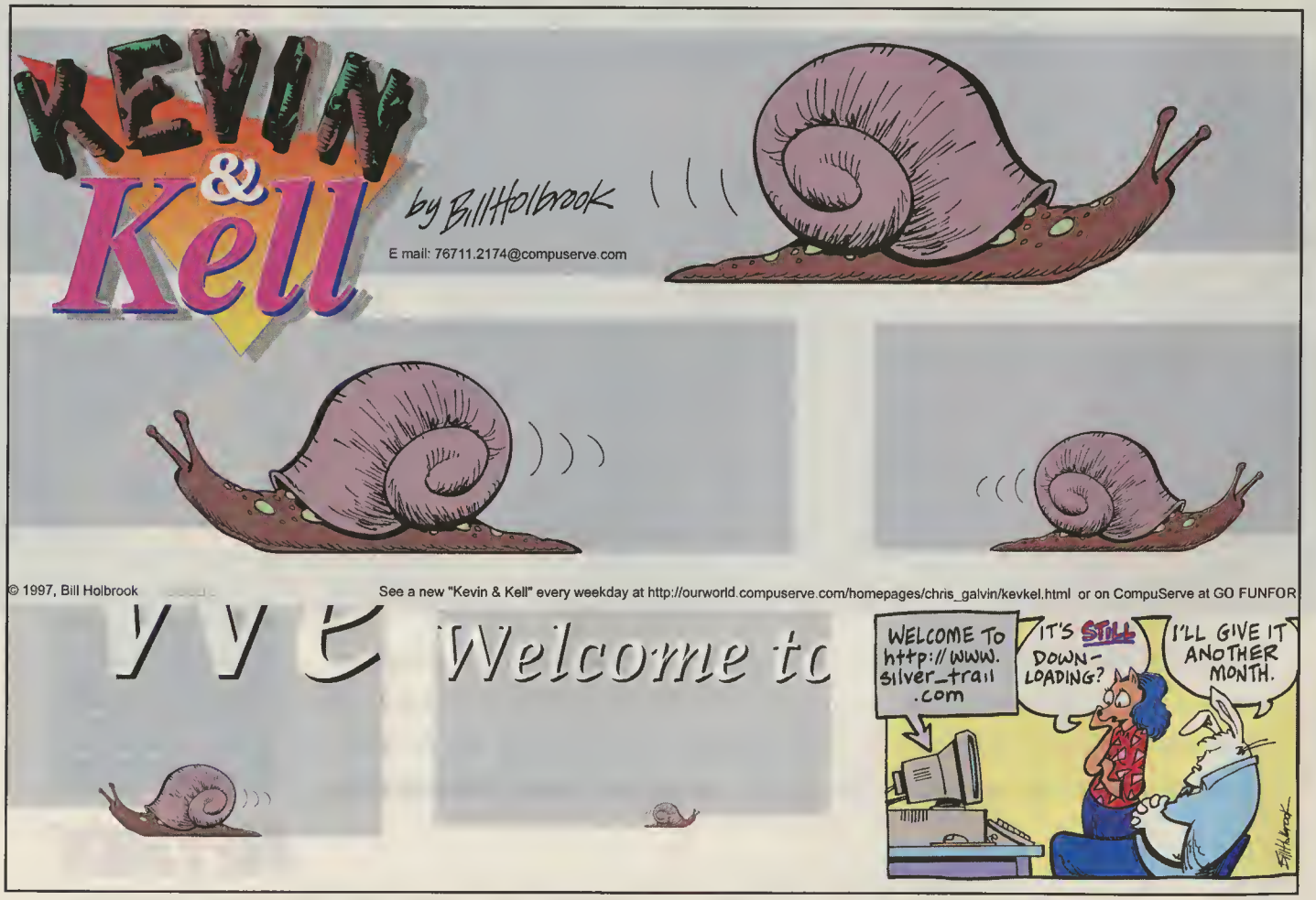
AT&T's fixed wireless telephone system has enormous potential. The savings in labor and maintenance costs alone could be enough to give AT&T a decisive advantage in pricing local telephone service against telcos using copper cable, which is easily damaged by backhoes, falling trees, and water infiltration. Furthermore, copper cable offers limited bandwidth for Internet connections. Copper cabling must also be maintained by skilled, expensive technicians. AT&T's fixed wireless telephone system could easily be upgraded to incorporate new technologies such as faster Internet service and full motion video conferencing by downloading new code into non-volatile memory, or at worst, swapping out the transceiver.

AT&T can even avoid investing in labor to service the "last remaining copper" — that of the telephone wiring installed in the home. It has long been established that the homeowner is responsible for telephone wiring past the demarcation point, which in this case would be the transceiver. AT&T could easily contract out the installation and maintenance of the transceivers and the home telephone wiring, or customers could choose their own telephone contractors. (This would finally realize Jack Rickard's long-held dream of the "Rusty Pliers, one-man-and-his-truck telephone company.")

The cost savings of AT&T's fixed wireless telephone system would not just be on AT&T's side. The customer would benefit from AT&T being able to offer bundled, lower-cost services such as "additional" fixed telephone lines, Internet services, cellular/mobile services, video conferencing, etc. AT&T's ability to bundle these services (and do so with inherent efficiencies, unlike other bundling arrangements where multiple services are merely combined onto one bill) should generate some compelling cost savings.

Will AT&T actually deploy this system? I, for one, hope so. My home, which is not too far from Redmond, is subject to all the typical problems of suburban copper telephone cabling — low speeds, service outages during storms (lots of big trees), and my current telco's general lack of willingness to do much about facilitating affordable ISDN or faster Internet connections. The AT&T fixed wireless telephone system seems ideally suited for fast growing (profitable) suburban areas, but less well suited for densely populated urban areas.

For more information, see AT&T's press release at `www.att.com/press/0297/970225.pca.html`.◆



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The MovinCool Keeps Your Equipment From Getting Too Hot

Robot from *Lost in Space* — The MovinCool

If you're a fan of the robot from *Lost In Space* and you need to cool your equipment room, have we got news for you! The MovinCool spot cooler is a terrific climate controller that resembles one of the greatest TV heroes of all time, Robot—yes, that was the robot's name.

The MovinCool line of spot coolers allows you to concentrate cool air where it is needed, like in the small equipment closet in your office. Some office building managers relax the central air conditioning during off hours. If you have ever worked a weekend during the summer and noticed that the office was a little warmer than usual, then you need some method of climate control to protect your valuable equipment. A MovinCool unit is a reliable and affordable solution.

There are three base MovinCool models: the 10SFU, 15SFU, 20HFU. Additionally, the 10SFU-1, 15SFU-1 and 20HFU-1 models have more self-monitoring features than the base units and can be fitted for an automatic draining pump. All MovinCool models come with an automatic full-tank shut-off switch that turns the unit off if it collects too much

water (much like a dehumidifier). This is a great feature that will prevent a flood in your equipment room; however, if the unit is off, it can't cool your equipment. So, if you plan on leaving the office unattended for the a long weekend in July, you can drain the excess water from the MovinCool, without worrying about interrupted service or cutting your vacation short. (You have to find a place to drain it, of course)

The smallest model is the 10SFU. It's sort of a one-armed version of the *Lost In Space* robot looking MovinCool. Perhaps this was the one-armed robot who Dr. Richard Kimble claimed to have committed the murder that made him *The Fugitive*. The 10SFU has a cooling capacity of 10,000 Btu/hour. Translated, this model is beyond adequate for a 15x15 equipment room. We have used one of these in a room about that size, which was home to a cumbersome PBX unit and 2 highly-active servers. The room was cool enough to keep our equipment from overheating.

Even the lightest model, the 10SFU, weighs 145 pounds. Without wheels, you would need to round up all your friends to move it. But each model has wheels which enable it to be easily moved anywhere it is needed.

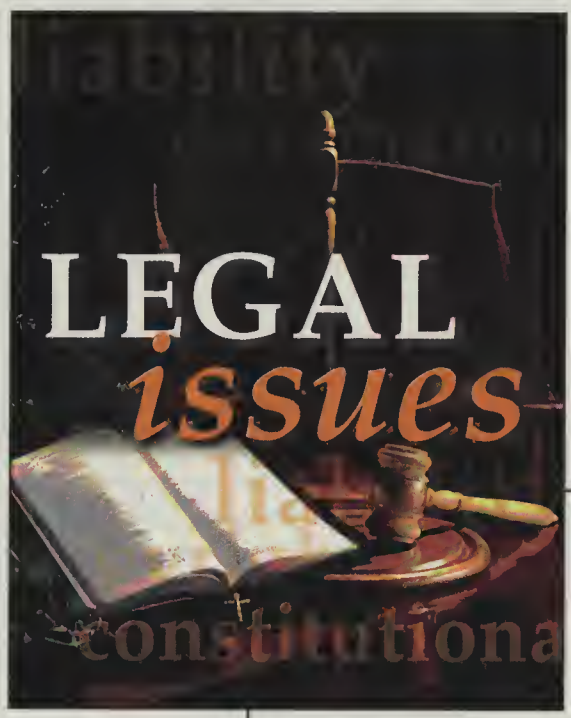
All MovinCool models need to be vented. Mostly, a venting hose is run into the ceiling vents. Since the cooling hoses can be extended 40 feet, some have been known to leave their MovinCools outside while pumping cold air into their equipment rooms. In that case, a venting hose is not necessary, but you might want to get a good chain and lock. The last thing you want is to have your MovinCool stolen by some teenagers on their way to a *Lost In Space* costume party.

We have one here at ***Boardwatch*** and it has been a godsend. We used to have to rely on the building's central air conditioning, which meant that we had to keep the equipment room open all day. Now, we can close the door and keep our servers, hubs and routers out of harm's way.

The folks at MovinCool make some great products, but they've got no web site. They can be reached at **800-264-9573** for more information and a dealer near you. ◆

MovinCool Model	Cooling Capacity	Maximum Cooling Hose Length	Price
10SFU	10,000 Btu/hour	40 feet	$2,095
10SFU-1	10,000 Btu/ hour	40 feet	$2,995
15SFU	18,000 Btu/ hour	50 feet	$3,235
15SFU-1	18,000 Btu/ hour	50 feet	$3,535
20HFU	24,000 Btu/ hour	60 feet	$3,925
20HFU-1	24,000 Btu/ hour	60 feet	$4,225

Note: The -1 models have additional features and can be fitted for an automatic drainage device.



SYSTEM OPERATOR LIABILITY: WHAT HAVE WE LEARNED?

by Eric Schlachter, Esq. Cooley Godward LLP

Eric Schlachter is an attorney practicing in cyberspace law with the Silicon Valley firm of Cooley Godward LLP. He is also an adjunct professor of Cyberspace Law at the Santa Clara University School of Law. He can be reached at **schlachtere@cooley.com**.

In the early 1980s, Thomas Tcimpidis operated a bulletin board system in Los Angeles. In 1984, Tcimpidis was arrested because a user had posted stolen telephone credit card numbers onto the BBS and Tcimpidis was charged with the misdemeanor of "knowingly and willfully" publishing the stolen numbers. Although the charges were eventually dropped, his arrest received national press coverage and drew attention to the potential liabilities faced by sysops for the actions of their users. Some sysops chose to shut down their system rather than face this liability.

We now have accumulated 13 years of experience regarding the issues faced by sysops for the content they make available on their system. As we might expect, many issues have been clarified in the intervening time, while many other issues have remain unresolved. Although there are many interesting issues related to sysop liability for their own actions and statements, the more difficult and complicated issues arise with respect to the liability faced by sysops, including Tcimpidis, for the activities and content of their users. Few sysops fully appreciate the extent of their liability for their users' or content provider's activities. This article focuses on some of the conclusions reached—and issues remaining—with respect to sysop liability for the statements and actions of third parties.

LIABILITY FOR THIRD PARTY ACTIONS AND CONTENT IS NOT UNPRECEDENTED

It is often assumed that sysop liability for a third party's actions is somehow unique or unprecedented. In fact, there are a wide variety of legal situations where one party shares liability for a third party's actions, many times without any wrongdoing on the part of the non-acting party.

The following illustrate some situations where a party is liable for the statements or actions of third parties:

- There are numerous situations where the principle of "vicarious liability" applies. Vicarious liability means that one party, regardless of conduct or intent, is liable for third party conduct. For example, an employer is vicariously liable for its employees' conduct performed in the course of employment. Therefore, if an employee is required by his or her job to drive a truck, and the employee causes personal injuries to a pedestrian, the employer will be liable for such injuries even if the employer did nothing wrong. Similarly, partners in a partnership are vicariously liable for all partners' actions performed in the course of the partnership.

- Parents can be liable for the conduct of their children. Sometimes liability does not accrue unless the parents were negligent in supervising their children; however, there are circum stances where the parent will be liable even if they were not negligent.

- Property owners may be liable for the environmental problems on their property, even if the problems were caused by a prior owner.

- Closer to the sysop situation, newspapers and other "publishers" are liable for the content they publish, even if the content is provided by third parties. Therefore, if a newspaper publishes an article written by a free lance journalist or a news wire service, the newspaper ordinarily will be liable for the harm cre ated from the article (as discussed above, if the article were written by a staff reporter, the newspaper would have been vicariously liable).

Also, copyright law is a "strict liability tort," meaning that intent to violate is not a prerequisite to infringement. Therefore, film processors have been found liable for copyright infringement merely by processing rolls of film delivered by customers. Furthermore, there is a vicarious liability doctrine in copyright law which has held the proprietors of "dance halls" vicariously liable for the copyright infringements committed by bands that play at the venue.

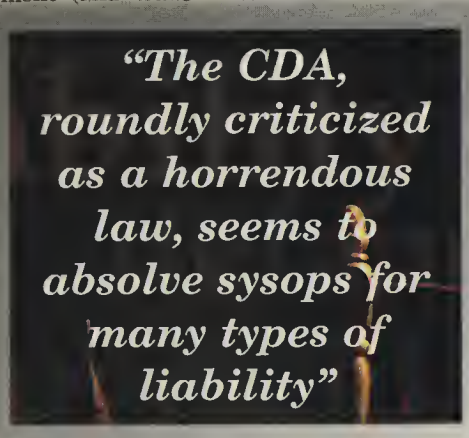
The above list is certainly not complete, but it illustrates the principle that there are many existing situations in a wide variety of legal doctrines where third parties can create liability for another. Therefore, perhaps sysop liability for third party actions and statements is not unprecedented. Of course, concluding that such sysop liability is a good thing is a different conclusion altogether.

The body of law relating to sysop liability continues to grow in an ad hoc fashion as cases in various disciplines are decided without cross-reference or integrating analysis. Therefore, this section discusses cases on sysop liability for copyright, defamation and obscenity/pornography. A brief mention of trademarks is also made.

COPYRIGHT

There have been three United States cases reported on the issue of sysop liability for copyright infringement committed by their users.

Playboy v. Frena, a 1993 case from a federal court in Florida, involved a situation where photos from *Playboy* had been scanned, digitized and uploaded to a bulletin board system in Florida called Techs Warehouse. George Frena, the sysop of Techs Warehouse, was sued by *Playboy* for copyright infringement (and trademark infringement and unfair competition, but these claims will not be discussed in this article).



Playboy moved for summary judgment in its favor, which the court can grant if there are no material issues of fact in dispute. Frena argued that there was a material issue in dispute, since he claimed that his users were responsible for uploading the digitized photos to the system (although in the court's discussion of trademark infringement, the court seems to believe that Frena himself had uploaded the photos—although the court was not permitted to make this factual determination in response to a summary judgment motion).

The court granted *Playboy's* motion for summary judgment, concluding that whether Frena or his users had uploaded the files was irrelevant. The court concluded that Frena violated *Playboy's* right of "distribution," arguing that "[t]here is no dispute that Defendant Frena supplied a product containing unauthorized copies of a copyrighted work. It does not matter that Defendant Frena claims he did not make the copies itself." In thinly worded analysis, the court also concluded that Frena violated *Playboy's* right of "public display."

The court concluded its analysis by reiterating why Frena's assertion that he did not load the files was irrelevant: "There is irrefutable evidence of direct copyright infringement in this case. It does not matter that Defendant Frena may have been unaware of the copyright infringement. Intent to infringe is not needed to find copyright infringement. Intent or knowledge is not an element of infringement, and thus even an innocent infringer is liable for infringement...."

Sega v. MAPHIA, a case from a federal court in Northern California, was initially decided in March 1994, closely after the *Frena* case. (A subsequent decision is discussed below; the initial decision is referred to as Sega I). In the Sega case, the defendants ran a bulletin board system called *MAPHIA*. Users of the MAPHIA BBS were able to get Sega game software which had been removed from the game cartridges and uploaded to the BBS. The defendants also sold "back up units" designed to allow users to copy Sega game cartridges. In connection with sales of such units, or on a standalone basis, defendants would permit buyers to download Sega games from the BBS. The defendants would also allow those who uploaded Sega games to the BBS the right to download other games.

The *Sega I* court found that the games had been uploaded to the BBS by users. The court made no conclusion that the sysops/defendants had uploaded the infringing material. Nevertheless, as in the Frena case, the Sega I court concluded that the defendants had directly infringed Sega's copyrights.

The *Sega I* court further concluded that MAPHIA had contributorily infringed Sega's copyrights. A contributory infringer is "one who, with knowledge of the infringing conduct of another, induces, causes or materially contributes to the infringing conduct of another." The defendants could properly be deemed contributory infringers because they had actively promoted the BBS as an exchange of copyrighted material and had encouraged it through selling and bartering the rights to make downloads.

The *Frena* and *Sega I* conclusion—that sysops are directly liable for copyright infringement by their users—has produced widespread criticism, but some policy makers have endorsed the result. The Clinton Administration appointed a task force to examine copyright issues in cyberspace, and in a 1995 "White Paper," the task force endorsed direct liability for sysops. Some discussions have been had within Congress to implement this endorsement legislatively. Also, at the World Intellectual Property Organization meetings in December 1996 in Geneva, a worldwide treaty was proposed (and rejected) that would make sysops directly liable for copyright infringement.

In December 1996, the *Sega* court rendered a second ruling that clarified the first ruling. Based in part on the Netcom decision (discussed in the next paragraph), the Sega II court concluded that since the sysop did not upload the games to the BBS, he was not directly liable for copyright infringement. However, due to his encouragement of unauthorized uploads and participation in the general scheme, he was found contributorily liable.

The third case involving sysop liability for copyright infringement is ***Religious Technology Center v. Netcom***, an opinion issued by a federal court in Northern California. The Netcom case involved potential liability for an infringing USENET posting made by a user. The user, Dennis Erlich, was a subscriber of a North Hollywood BBS called Support.com operated by defendant Tom Klemesrud, who used Netcom as the BBS's Internet service provider.

Erlich posted a message containing the copyrighted material of the Religious Technology Center, which is an entity associated with the Church of Scientology. The message was sent by Klemesrud's BBS to Netcom's servers, which forwarded the message on to other USENET servers and made the posting available to Netcom's subscribers. Plaintiffs contacted the defendants and asked them to take various steps, including the removal of the posting from the USENET servers. Most of

the plaintiff's requests were denied, and Erlich's posting remained on Netcom's USENET server until it was deleted in the ordinary course of purging old USENET postings 11 days later.

The Religious Technology Center sued Erlich, Klemesrud and Netcom under a number of theories, including copyright infringement. In an opinion issued in late 1995, the court dealt with Netcom's and Klemesrud's liability for copyright infringement.

The court found that Netcom and Klemesrud were not liable for direct infringement of the Scientology texts by forwarding the work to other USENET servers and by displaying the work to USENET readers on their services. Although their servers made copies of the materials, neither Netcom nor Klemesrud had done nothing volitionally: "Only the subscriber should be liable for causing the distribution of plaintiff's work, as the contributing actions of the BBS provider are automatic and indiscriminate." Further, if the court did find Netcom or Klemesrud liable as a direct infringer, then USENET would necessarily be shut down because each server would be directly infringing—a result the court did not think was necessary: "The court does not find workable a theory of infringement that would find the entire Internet liable for activities that cannot reasonably be deterred."

In refusing to hold Netcom and Klemesrud directly liable for copyright infringement, the Netcom court declined to follow the results reached in *Frena* and *Sega I* holding the sysops directly liable for their users' actions.

With respect to contributory infringement, the court noted that Netcom and Klemesrud were given notice of the existence of infringing material before the posting was automatically flushed. As a matter of law, the court concluded that "[w]here a [sysop] cannot reasonably verify a claim of infringement, either because of a possible fair use defense, the lack of copyright notices on the copy, or the copyright holder's failure to provide the necessary documentation to show that there is a likely infringement, the operator's lack of knowledge will be found reasonable and there will be no liability for contributory infringement for allowing the continued distribution of the works on its system." By implication, therefore, if the sysop receives a valid and adequate notice of copyright infringement occurring on its servers and fails to act, the sysop could be contributorily liable. The court reserved the issue of whether or not Netcom and Klemesrud had sufficient notice for further argument by the parties.

The court also addressed whether Netcom should be "vicariously" liable for Erlich's behavior. In copyright law, vicarious liability accrues when a party has sufficient "right and ability to control" behavior and receives a direct financial benefit from the behavior. Although the court could not make a factual determination about Netcom's right and ability to control Erlich, the court found that Netcom did not directly benefit financially from Erlich and therefore was not liable. (Klemesrud's vicarious liability was not thoroughly addressed because of a procedural error made by the plaintiffs.)

Finally, the *Netcom* court addressed whether Netcom's behavior was excusable under the "fair use" defense. "Fair use" is a defense to claims of infringement and can be found by analyzing four factors: the purpose and character of the use, the nature of copyrighted work, the amount and substantiality of the portion taken, and the effect of the use on the potential market for the work (all four factors are considered, although the last is considered the most important). Although Netcom did copy the entire work in some cases, the court noted that Netcom only copied the amount of the work necessary to act as a USENET node. The court reserved as a factual matter whether or not Netcom's use was fair.

The *Netcom* case was a well-reasoned case and it tells us a lot about the latest thinking on sysop liability for copyright infringement. Although the case was not a clear victory for Netcom or Klemesrud, it is fairly clear that they were unlikely to face liability for acting as a USENET node. However, Netcom and Klemesrud were potentially subject to liability because they were informed that their system contained infringing material and they failed to act. Even in this case, the court seemed sympathetic to Netcom's argument that it should not be forced to remove infringing material just because it receives an unsupported assertion that the material infringes. Therefore, unlike the Frena and Sega I cases, which effectively held sysops strictly liable for any copyright infringement on their systems, the Netcom court established some meaningful thresholds on possible sysop liability. For better or worse, we will never know how the Netcom court would finally resolve the issues. In the Fall of 1996 Klemesrud settled for $50,000 and Netcom settled under a cloak of confidentiality.

Finally, an international copyright case is worth mentioning. In the case *Scientology v. Providers*, a decision rendered by the District Court of the Hague in March 1996, the Church of Scientology sued 22 Internet service providers (ISPs) and one Internet user (who had a home page containing Church of Scientology material) for copyright infringement and trade secret misappropriation, seeking an injunction against further infringement. The claim against the user failed because the user had already modified her page to delete some materials and had retained only those materials that had been published before (and therefore were not trade secrets), and the remainder were subject to the Danish equivalent of fair use. As for the ISPs, the court concluded that the ISPs had no knowledge of what their users do and no ability to influence such actions. Therefore, "there is no reason to hold them responsible for wrongful acts of users, e.g., copyright infringements by third parties." However, the court might have reached a different result if the ISP knew of the users' actions and further knew they were unequivocally wrongful.

DEFAMATION

There have been two reported cases in the United States that have addressed sysop liability for defamation.

The first case is ***Cubby v. CompuServe***, a 1991 decision from the Federal district court in New York City. In this case, CompuServe, an international online service, contracted with Cameron Communications for Cameron to manage CompuServe's Journalism Forum. Cameron in turn contracted with Don Fitzpatrick Associates for Fitzpatrick to supply its periodical *Rumorville USA* to the Journalism Forum. In addition to being CompuServe subscribers, *Rumorville* readers had to contract with Fitzpatrick for the right to read the periodical. CompuServe's only compensation related to *Rumorville* was for the time its users spent online reading *Rumorville*. It received no share of the subscriptions paid to Fitzpatrick nor made a separate subscription or access fee charge to readers.

In 1990, *Rumorville USA* published some statements that the plaintiffs alleged were defamatory, and the plaintiffs sued CompuServe and Fitzpatrick for libel, business disparagement and unfair competition. In the case, CompuServe asked

for the court to dismiss CompuServe from further proceedings.

At issue is whether CompuServe was a "publisher" of *Rumorville* or a "distributor" of Rumorville. The law accords special protection to distributors, because to impose excessive liability on them would force them to review all content they distribute, which is an impermissibly heavy burden under the First Amendment. The court concluded that "CompuServe . . . is in essence an electronic, for-profit library . . ." and noted that once CompuServe (or, in this case, its independent contractor) decides to carry a publication, it will exercise little editorial control over the contents of that publication.

Therefore, CompuServe could be liable for the contents of *Rumorville* only if it knew or had reason to know of the allegedly defamatory statements. Since CompuServe did not review the contents of *Rumorville* before it was published, and did not otherwise have any reason to know of defamatory statements in *Rumorville,* CompuServe was not liable for *Rumorville's* statements. The court also rejected vicarious liability on CompuServe's part for the actions of Cameron and Fitzpatrick, noting that CompuServe had delegated management of the Journalism Forum to Cameron. The court rejected arguments that CompuServe's requirement that Cameron manage the forum in accordance with CompuServe's standards, CompuServe's training of Cameron and the indemnity from CompuServe to Cameron were sufficient to give CompuServe control over Cameron.

For many years lawyers and industry members believed that the *Cubby* case was the definitive statement regarding sysop liability for the statements or actions of its users. Indeed, until the *Frena* case, *Cubby* was the only reported case on the subject. Furthermore, the standard articulated in *Cubby*—that CompuServe was liable only if it knew or had reason to know of the allegedly defamatory statement—provided a reasonably well-defined, relatively high threshold for insulating sysops from liability.

Thus, the industry received a rude shock from ***Stratton Oakmont v. Prodigy***, a decision handed down by the New York Supreme Court (the lowest court in New York) in May 1995. The case involved postings to Prodigy's Money Talk forum that allegedly defamed Stratton Oakmont and its president. These postings were made from an inactive account held by a former employee, and therefore the poster was effectively anonymous. Again, the issue was whether Prodigy was a "publisher" of the statements and therefore subject to a higher standards of potential liability for defamation.

Throughout the early 1990s, Prodigy had aggressively marketed itself as the family-oriented online service. In particular, Prodigy had claimed to exercise editorial control over its content and had repeatedly analogized itself to a newspaper. To accomplish its objectives, at one time Prodigy had deployed dozens of employees to prescreen and review every public posting. Prodigy also used a number of techniques to control the content made publicly available on its service: using software that prescreened for a proscribed list of words; promulgating user guidelines which prohibited messages that were insulting, repugnant to the community, or harmful to a harmonious community; using "Board Leaders" to enforce these guidelines; and making available technical tools for Board Leaders to delete offensive messages.

The court concluded that Prodigy was a publisher as a matter of law, and therefore subject to liability for defamation as a publisher, for two primary reasons. First, Prodigy had held itself out as exercising editorial control. Second, the use of prescreening software and Board Leaders to enforce subjective guidelines meant that Prodigy was making decisions about content.

Furthermore, the court held that the Money Talk forum's Board Leader was an agent of Prodigy, and therefore Prodigy was vicariously liable for the Board Leader's actions. Despite rather clear language in Prodigy's agreement with the Board Leaders disclaiming an agency relationship, the court found that by requiring the Board Leaders to enforce Prodigy's guidelines and by requiring Board Leaders to seek guidance from Prodigy, Prodigy had "managed" the Board Leaders such that they were considered agents as a matter of law.

The *Stratton Oakmont* case was widely criticized when it was issued, in part because of the sweeping implications of the court's ruling and in part because of its inability to be easily reconciled with the *Cubby* case. Indeed, by 1994 (the time of the postings at issue in *Stratton Oakmont*), Prodigy was no longer attempting to control the content on its system in a meaningfully different way than was AOL or CompuServe. However, there is no doubt that the Stratton Oak-mont result can be explained in part by Prodigy's very public assertions in the early 1990s about its exercise of editorial control—assertions that came back to haunt Prodigy (although the case ultimately settled without Prodigy having to pay any money to Stratton Oakmont).

As discussed below, the *Stratton Oakmont* case may no longer be good law. However, a few lessons can still be learned from it. First, any marketing campaign must be carefully considered in the context of the legal environment in which the company operates. Prodigy may very well have been able to persuade the judge to follow the *Cubby* reasoning if Prodigy did not have all of its declarations from years past to explain away. Second, although manipulation of user content is necessarily required in the process of making it publicly available, the more manipulation performed, the more than a technologically-challenged judge might consider it to be a form of editorial control. Therefore, despite the many advantages to automatic word filters, these filters can support a claim of editorial control and therefore should be used advisedly. Third, user agreements regarding the posting of content should be drafted extremely carefully, so that "subjective" standards are minimized. Typically, a clause requiring users not to make any illegal postings is sufficient to restrict most noxious conduct—without creating the opportunity for the sysop to be perceived as applying "subjective" standards that look like editorial control.

OBSCENITY AND PORNOGRAPHY

Although there have been many cases involving sysop liability for obscene or pornographic material, none of these cases have involved sysop liability for user postings.

However, the Communications Decency Act (CDA), a portion of the Telecommunications Act of 1996, deals squarely with sysop liability for "indecent" postings by their users. Gen-erally, the CDA prohibits users from knowingly sending content that is "obscene, lewd, lascivious, filthy or indecent, with intent to annoy, abuse, threaten or harass" another person or sending content that is obscene or indecent knowing that the recipient is under 18. The CDA also prohibits knowingly sending or displaying content to persons under 18 any content that, in context, depicts or describes, in terms patently offensive as measured by contemporary community standards, sexual or excretory activities or organs.

In both cases, individuals who knowingly permit any "telecommunications facility" under their control to be used for such activities, with the intent that the facilities be used for such activities, are also liable.

There are many defenses described in the CDA, and mapping out the contours of these defenses is beyond the scope of this paper. However, in many cases such analysis is currently moot—almost all of the operative provisions of the CDA have been enjoined in the much-heralded case *ACLU v. Reno*. The *ACLU* case is currently pending before the U.S. Supreme Court, and a ruling is expected in mid-1997.

Nevertheless, one defense enumerated in the CDA is particularly important: "No provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider." The legislative history on this provision says "[o]ne of the specific purposes of this section is to overrule *Stratton Oakmont v. Prodigy* and any other similar decisions which have treated such providers as publishers or speakers of content that is not their own because they have restricted access to objectionable material."

This section raises as many questions as it answers. On its face, it appears to negate many forms of sysop liability for third party actions or statements, resolving many of the ambiguities discussed in this paper. On the other hand, there are several questions:

Will courts give effect to this provision if the remainder of the operative provisions of the CDA are permanently struck down as unconstitutional?

Will courts give effect to this provision if the sysop is not trying to restrict access to objectionable materials but is merely exercising a more general form of editorial control?

Will this language be extended to cover sysop liability for copyright infringement, which does not use the term "publisher" or "speaker" but instead uses the

terms "reproduce," "distribute," and "publicly display"?

TRADEMARKS

The *Frena* and *Sega* cases both addressed sysop liability for trademark infringement. However, in both cases the sysop was the party taking the actions resulting in trademark in-fringement. In Fre-na's case, Frena had inserted his own proprietary rights no-tices into the GIFs; in the Sega case, the sysop had developed file descriptions and hierarchies which used Sega's trademarks. Therefore, these cases contribute little to our understanding of sysop liability for third party trademark infringement.

However, a decision somewhat relevant to this topic was reached in ***Panavision v. Toeppen*** in a decision reached in November 1996 in a federal district court in Los Angeles. In the case, the domain name registry Network Solutions, Inc. (NSI) was sued for negligent interference with prospective economic advantage for giving the domain names *panavision.com* and *panaflex.com* (both of which are registered trademarks owned by Panavision) to Dennis Toeppen, a notorious domain name hijacker. The tort of for negligent interference with prospective economic advantage is a relatively nebulous one and therefore courts are reluctant to extend liability too far—defendants must have a "special relationship" with plaintiffs in order to be liable. The Panavision court ruled that such a special relationship did not exist between NSI and Panavision. NSI did not know that Toeppen's actions were intended to interfere with Panavision's rights, and "NSI is under no general duty to investigate whether a given registration is improper." Although this language is context-specific to the general duties of registries for negligent interference with prospective economic advantage, the reasoning of the case might apply to insulate sysops for trademark infringements committed by their users.

SO WHAT HAVE WE LEARNED?

There are no clear trends about whether or not we really want sysops to act as the guarantor for the harms caused by their users. The *Frena, Sega I* and *Stratton Oakmont* cases very liberally imposed liability on sysops. Other cases, such as *Netcom* and *Cubby*, have imposed significant hurdles on finding sysops liable. The legislative trends have been no more clear. The rumblings made in congress and at the WIPO conference toward increased sysop liability are ominous. But the CDA, roundly criticized as a horrendous law, seems to absolve sysops for many types of liability.

In the midst of the confusion, however, one phrase comes up repeatedly: Did the sysop "know or have reason to know" of the harmful conduct? This standard requires that the sysop had actual knowledge or deliberately ignored the problem before imposing liability on the sysop. On the other hand, it does give harmed third parties, like copyright owners or defamed parties, the opportunity to limit their harm by forcing action when the sysop is informed of a problem. This solution avoids a legal regime of liability so chilling as to drive sysops out of the business, without permitting anarchy to reign on the Internet.

Nevertheless, there is no promise that the rules to be developed regarding sysop liability will strike any balance at all. As more cases are decided by judges who do not understand the technology, and as more sweeping and broad legislation is introduced by legislators who do not understand the technology, the only predictable results are chaos, confusion and long battles to preserve the emerging cyberspace industry. ◆

Convergence or Collision: Telecommunications Regulation and the Internet

The following comments were delivered by Reed Hundt, Chairman of the Federal Communications Commission on March 7, 1977 at the University of California, Berkeley.

President Kennedy won the applause of millions when he went to Germany and said in front of that Wall which has now tumbled down: *Ich bin ein Berliner.*

What can I say to win the approval of the economists who organized the conference today? Ich bin ein economist won't work. The truth is I am a lawyer; in fact it's worse than that, I'm a son of a lawyer. I am not, regrettably, an economist.

I can say that I hired two Berkeley economists as Chief Economists at the FCC, and that under our first and brilliant occupant of that seat in my tenure Mike Katz and under the leadership of his equally able and equally energetic successor Joe Farrell we have tripled the number of economists at the agency.

I can say that my motto on day one, memorialized on T-shirts at our first retreat, was "Read the law, study the economics, and do the right thing." I hope the economists forgive that part about the law.

I can say that I have a pitbull, I've named it *Long Run Incremental Cost,* and I've let little LRIC chew on all the other historic dogs in the neighborhood.

This would be true if I had a dog, but those of you who are economists can assume a dog.

I've had my current job for three-and-one-half funfilled and exciting years. In my term the Internet has exploded into consciousness; the hardware and software business in the U.S. has more or less tripled in market cap; the country has decided that every child should have public access to communications technology; millions of new information-sector jobs have been created in the U.S., and the entire world has agreed in the World Trade Organization to reject the old way of monopoly in the communications sector and adopt the American paradigm of competition to build the global information highway.

I could take credit for all that. In my memoirs I shall.

But for now let me say that economists deserve all the credit. Earlier this week I told the cellular telephone association, *Wired Magazine,* and the Association for Computing Machinery each that they deserved all the credit.

This is called speaker's license.

Speaking of license, I read in the *Wall Street Journal* yesterday (as Mort Sahl said, I get it every day, packed in ice) that economists have given the Administration a B minus grade. Who knows what they would say if we hadn't had steady economic growth, huge wealth creation in the stock market, and historic progress toward a balanced budget. These successes are attributable in large part to sound economic advice in the halls of government. Brilliant economists like Joe Farrell, Joe Stiglitz, Janet Yellen, and Larry Summers play key policy roles. Others like Laura Tyson, Alan Blinder, Carl Shapiro and Rich Gilbert shaped the essential decisions of the first term of President Clinton's administration.

It was economists and their way of approaching issues that lay behind the highly difficult and politically courageous decisions like supporting NAFTA, twice defeating the Balanced Budget Amendment, striking the ITA and Basic Telcom agreements in the WTO, passing OBRA in 93, and, at the FCC, totally overhauling spectrum policy and opening up the local exchange market to bypass or sharing by rivals.

Reed Hundt, Chairman, Federal Communications Commission

Economists chronically fail to answer such pressing questions as how best to improve economic growth or reduce wage disparity or predict the future. But these are very forgivable failings and are in no way fatal to the utility of the discipline.

In my job I find that economists help us more than any other experts to define policy goals in measurable ways, identify illogical reasoning, focus on the greater good and not on the greater political power, and routinely suggest new perspectives and fresh ideas.

To use my time wisely today, therefore, I have brought you some of the questions before us.

First, what ought to be the purpose of our FCC policies?

To make this exercise fit within the academy's protocols, I'm also going to give you

a range of answers. If you'll just mark down the correct choices on a scrap of paper Mike Katz and Joe Farrell will collect them later, throw them away, and tell me what they know we should do.

What is our purpose?

a. Optimize welfare gains.

b. Undo previous policy mistakes that didn't optimize welfare gains.

c. Redistribute wealth so as to increase opportunities for all, especially children.

d. Favor competition over regulation of monopolies, even if competition is messy, somewhat inefficient, and challenging to insist upon.

e. All of the above.

Second, what steps should we take to assure that the existing telcom incumbents' networks are susceptible to being bypassed or shared by new entrants, yet at the same time are not under-funded or under-innovated as a result of pro-competition rules at the federal or state level?

Answers:

a. Order that new facilities or services developed by incumbents after a future date certain should not be subject to resale or sharing rules in our justly famous Interconnection Order unless five years pass.

b. Order that the second line to the home or business be deregulated as to price, and not be the recipient of any subsidy.

c. Order that other than universal services such as basic dial tone, no other retail phone service be rate regulated by state or federal commissions.

d. Issue in April a Notice of Inquiry on any and all innovation issues suggested to us by anyone, make a record, then proceed to rulemaking to be concluded not later than this fall.

e. All of the above.

Third, what if anything should we say or do about the Internet?

a. Run and hide from the 320,000 e-mail messages supporting the ESP exemption that have already been sent to the four commissioners. Never in the course of human history have so many said so much to so few.

b. Pretend that the Bells didn't ask for interstate access charges to be imposed on ESPs.

c. Pretend that there aren't any usage costs generated by ESPs on the PSTN.

d. All of the above.

Many of the local phone companies have been urging us to allow them to assess per-minute access charges on Internet service providers. They claim that Internet usage is clogging their networks.

The first task for the FCC should be fixing the access charge system. With respect to the access charge system, the current emerging view seems to be that we should take a big first step to reduce terminating charges and a somewhat smaller first step to reduce originating charges, commit to a predictable path over a few years to reduce each toward TSLRIC levels, flat-rate some but not necessarily all the shortfall for the LECs by way of a charge to IXCs, tilt that charge somewhat toward the business lines and away from residential, and increase flat-rate charges on end users as to multiple lines.

"Run and hide from the 320,000 e-mail messages supporting the ESP exemption that have already been sent to the four commissioners. Never in the course of human history have so many said so much to so few."

And we need to take steps to guarantee resulting decreases in the prices for long distance offered to those Americans who have not otherwise benefited from the price drops contained in various volume-based discount plans. Even low-volume users, and users too preoccupied or poorly informed to seek out a discount plan, have demand elasticity, so even from a pure efficiency point of view it's bad that they pay such high per-minute prices.

If the Commission takes these steps, it will earn a very glorious place in telcom history, since it is something like what I've outlined that economists have been urging on us for many, many years. If we don't, based on what you've told me for several years now, we will deserve your criticism and contumely for some time to come.

But about Internet access charges I don't think we have the data or the good practical ideas that beckon us toward clear decisions on access reform generally.

For instance, we have surprisingly little information about some critical empirical questions. Exactly what are the costs of network upgrades to support the growth of Internet services? How would different pricing regimes — for example, charging some usage-sensitive rate to ISPs — affect Internet usage patterns? How much overall revenue do local exchange carriers derive from Internet usage, when you factor in things like second line growth?

As a former litigator, I find this perpetually frustrating. In litigation, if you need a piece of information, you subpoena it, or depose under oath the person best able to supply it, or find a consultant who's collected it and pay for the multi-thousand dollar report. At the FCC, it seems we're always being told "that's confidential information; we can't tell you," or different parties tell us completely contradictory things — not under oath, I notice. It's so bad that in our recent wireless competition report, mandated by Congress, we had to admit that we have only anecdotal and second-hand evidence that prices fall when new entrants come into the market! This is pretty sad stuff; the academy could help us enormously if it chose to do so.

In any event, we are being told just now that the Internet and other new interactive services are sorely constrained by the capillary telephone network we have today. This could be true-ish, but already Nortel, Lucent, DSC, and other equipment manufacturers have announced products to redirect Internet service provider traffic away from circuit switches and onto packet-based data networks.

At our bandwidth forum in late January, Hughes demonstrated their DirectPC service that provides 400 kilobits per second Internet access to the home, and we also saw a wireless MMDS service that provided 1.5 megabits per second.

Meanwhile, AT&T just announced their own digital wireless local loop technology, which they say will provide up to 128

kilobit per second connections. Microsoft rocked the CTIA convention this week by suggesting that wireless companies are not doing enough to promote Internet access; our policies can at least open the door for a response. Specifically, we can do more to facilitate cell siting, guarantee flexible spectrum use, reduce interconnection charges, and attract investment.

And MFS is buying unbundled loops from local phone companies, connecting those loops to their own equipment, and providing data rates as high as 764 kilobits per second. Future xDSL implementations promise as much as six megabits per second over ordinary copper phone lines, over 200 times as fast as the current generation of analog modems. xDSL may be the gateway to the construction of a ubiquitous, nationwide, unswitched, packet-based service. If not that technology, some other may be the solution to congestion in the circuit-switched network. I just don't think the FCC knows enough at this time to alter the current ESP exemption.

But I do think we know one important thing: Our best bet for promoting Internet solutions will be our overall competition policy.

The Telecommunications Act of 1996 should really be called the Big Bandwidth Act, because that's what it will mean if we do our job right.

To have big bandwidth networks, we will need to see the kind of competition that characterizes, for example, the pizza delivery business. Like pizza, bandwidth will be delivered piping hot to your door, in small, medium, or large size. You'll be able to get anything you want on it—voice, video, or data, in any combination.

No one thinks that pizzas are best delivered by a single monopoly, subject to the control of the Federal Pizza Commission. No one should think that personalized home or business bandwidth needs are best served by the old regime of regulated monopoly.

So let's have the FCC and the states aggressively enforce the three rights of competition: resale, interconnection, and unbundling.

Meanwhile, let's have the FCC and the states aggressively deregulate certain service. For instance, ISDN has been available for more than a decade, and it provides eight times the bandwidth of current analog modems. Yet there are still less than a million ISDN lines installed in the entire country. Meanwhile, state commissions are regulating the price of ISDN; could this situation resemble state regulation of cellular, which appears to have reduced competition in cellular pricing? This could be studied; test cases abound. According to the Consumer Project on Technology, 200 hours of ISDN usage costs $45 per month in Wisconsin and $505 per month in Indiana. Here in California, the same level of usage costs about $95 per month.

Perhaps there is a right regulated price; or perhaps states should simply get out of the business of regulating rates for ISDN, let companies in the marketplace set the prices, and let competitors come in and undercut it if they think the price is too high.

"The Telecommunications Act of 1996 Should really be called the Big Bandwidth Act, because that's what it will mean if we do our job right."

Our national competition and deregulation policy depends on giving new entrants the right to lease capacity and unbundled network elements at a fair price. And here's a point where I think the economists have it right — the fair price is forward-looking economic cost, which starts from something called Total Element Long-Run Incremental Cost. ("TELRIC" doesn't include forward-looking common costs, which has been a wholly unnecessary source of controversy.) Economists have sold us; not yet persuaded our reviewing court, the Eighth Circuit; but have made a sale with the states: 33 of 35 states have used this methodology in setting rates for unbundled network elements on their own, with no mandate from the FCC.

If prices for sharing the existing network are set based on these efficient pricing principles, the marketplace will quickly select the technologies that relieve Internet congestion, won't it?

Affordable Access

All the bandwidth in the world doesn't matter to you if you don't have an affordable way to access it. That's why the Federal-State joint board on universal service has recommended that we spend $2.25 billion a year to connect every classroom and library in the country to advanced telecommunications and information services. By bringing the Internet to schools we will not only revolutionize education, we will stimulate the continued expansion of advanced networks to every corner of America. The money we spend in connecting the schools, like the G.I. Bill and the Marshall Plan, will be repaid many times over in the benefits this effort brings to our economy and our society.

According to the *Wall Street Journal* poll, almost half of the surveyed economists believe that more public spending on education will promote growth. However, it will take more than government alone to reach our educational networking goals. I spent most of the day today at a meeting sponsored by the Packard Foundation to develop public-private partnerships to bring computers into schools. Net Day programs, which started here in California, are a good example of what a few companies and individuals can do if they commit a small amount of time and effort to connecting schools in their area.

Right here at the University of California at Berkeley, there is a program that uses the Internet to connect Berkeley undergraduates with high school seniors in a low-income minority high school in San Francisco for "electronic mentoring." If the connectivity is there, creative people will devise innovative ways to take advantage of it.

I recently got a very complimentary e-mail message from an "ardent netsurfer" in Japan named Shoji Akao, who said that he wished that the FCC was a Japanese government organization. He noted that, while NTT in Japan was promising high-speed Internet connectivity for every household by the year 2010, the FCC is actually putting into place today the competition policies that are making affordable, high-bandwidth Internet access a reality.

As the recent WTO agreement demonstrated, Mr. Akao doesn't need to look to the U.S. alone, although I appreciate the compliment. All the countries of the world are embracing the policies of competition and deregulation as the right ones. They are the right policies for telecommunications, and they are the right policies for the Internet. ◆

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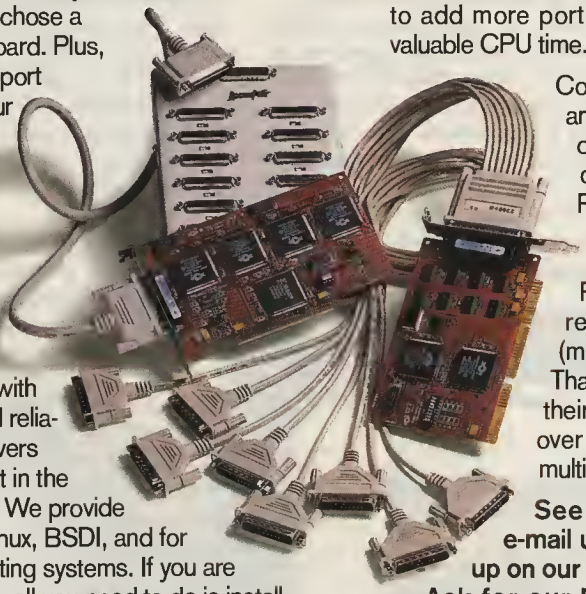

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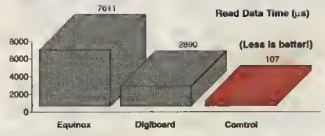

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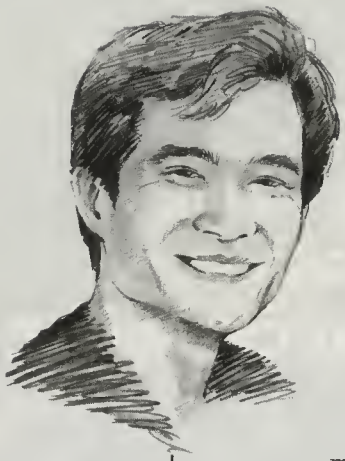


Notes From The Underground

by Wallace Wang

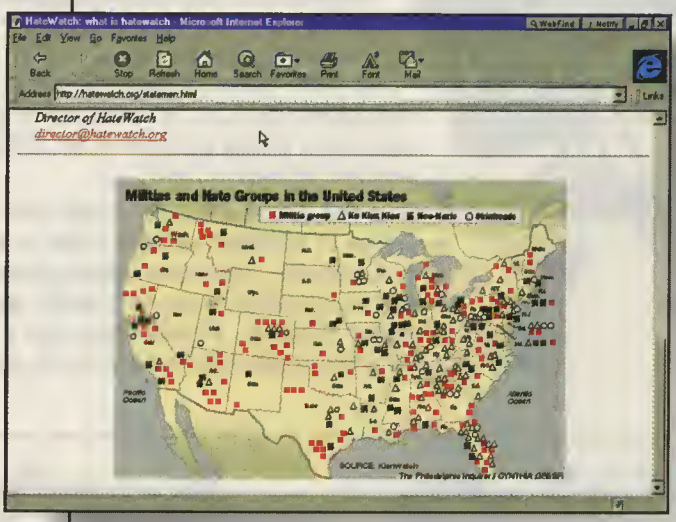
HATE GROUPS ON THE INTERNET

Newspapers and magazines are heralding the development of the Internet as the next revolution in worldwide communication. But while most people focus on the benefits of e-mail or the World Wide Web, the popular media seems to be ignoring another use for the Internet.

Sending and receiving e-mail across continents can bring families together and allow friends to stay in touch, but the low-cost, worldwide availability of the Internet is now being used by hate groups to recruit and organize members who openly advocate the death of people belonging to different ethnic backgrounds.

Don Black, the ex-Grand Dragon of the Ku Klux Klan and owner of the white supremacist home page ***Stormfront***, said that the "...Internet has had a pretty profound influence on a movement (white supremacist) whose resources are limited. The access is anonymous and there is unlimited ability to communicate with others of a like mind." (***New York Times***, March 13, 1995)

Since hate group activity is increasing as rapidly as the growth of the Internet, an organization called HateWatch (**http://hatewatch.org**) has appeared as a civic watchdog. Started in 1995, HateWatch provides online resources for concerned individuals, academics, organizations and the media to keep abreast of and counteract hate activity in our world. As part of its work, HateWatch provides links to hate group home pages, tracks the use of these pages for recruitment purposes, and provides bibliographic information by and for leading scholars.



According to HateWatch, a hate group is defined as an organization or individual that advocates violence against or unreasonable hostility toward those persons or organizations identified by their race, religion, national origin, sexual orientation, or gender — including organizations or individuals that disseminate revised or historically inaccurate information with regard to these persons or organizations. (So based on this definition, President George Bush and his administration might fall under this category, since they never revealed that they sold weapons to Iraq and Panama, and then later attacked both countries under the guise of "protecting American interests.")

Although HateWatch doesn't provide links to government organizations that fall under its hate group definition (you'll have to visit www.kimsoft.com/kimspy.htm for a list of U.S. and foreign intelligence agencies), it does provide links to a variety of traditional hate groups such as white supremacists, skinheads (who are prime candidates for the Hair Club for Men when they get older), foreign ultra-nationalists, black radicals, neo-Nazis (who often live in countries that the Nazis tried to wipe out during World War Two), Holocaust deniers (who also deny that "Schindler's List" was ever made into a movie), Christian nationalists (who believe in killing anyone who reminds them of the commandment that says 'Thou shalt not kill'), anti-gay activists (does the Vatican fall under this category?), anti-Christian groups (who prove that they can hate Christians just as much as Christians can hate others), and anti-Arab groups.

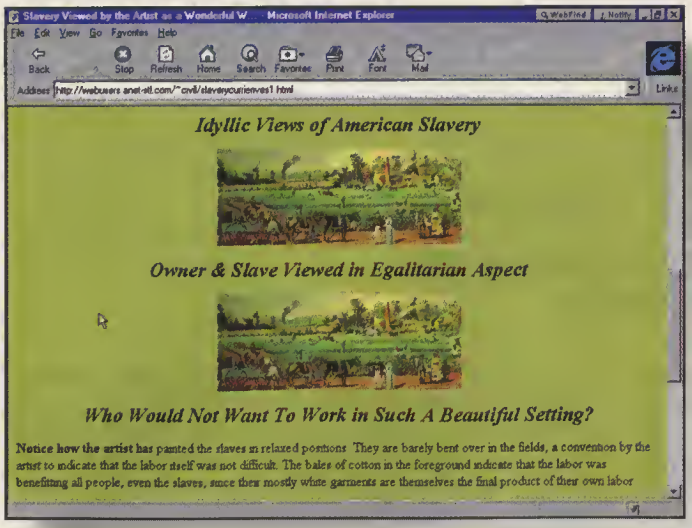
While individuals could use HateWatch to find the nearest hate group to join and support, hate groups can also browse the HateWatch links to find another hate group somewhere in the world that specifically hates them for no reason.

For the rest of us, browsing through the HateWatch links will certainly open our eyes to the variety of beliefs that cause people to hate others just because somebody told them it was the right thing to do. To start your tour of differing opinions, visit the American Civil Rights Review web site (**http://webusers.anet-stl.com/~civil/slaverycurrierives1.html**) and learn that both blacks and whites could be slaves and that slave owners have been unfairly depicted as universally cruel and inhumane.

In case you want a second opinion about slavery, jump to the Blacks & Jews web site (`www.tiac.net/users/lhl/Latest_B_J_Issues.html`) where you can learn that "The origin of the extensive slave trade in Black flesh, conducted by Arabs at roughly the same time as the transatlantic trade, is worth

Wallace Wang is the author of ***CompuServe For Dummies, Visual Basic For Dummies, More Visual Basic For Dummies, Microsoft Office 97 For Dummies,*** and ***More Microsoft Office 97 For Dummies***.

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at `70334.3672 compuserve.com`, `bothekat@aol.com`, `bo_the_cat@msn.com`, or **bothecat@prodigy.net**



examination. The predominant icons of Jewish philosophy, Judah Halevi and Moses Maimonides, both harbored the most vile anti-Black beliefs and encouraged among the Jews the Curse of Ham myth which asserts that the African is black-skinned and subhuman as a result of a divine curse, appropriate only for service to White people."

Since the Jewish people are often focused on by these hate groups, perhaps it's time for a viewpoint as reported by the Jewish Defense League (`www.jdl.org`). Here you can learn that "...in the end — with few exceptions — the Jew can look to no one but another Jew for help and that the true solution to the Jewish problem is the liquidation of the Exile and the return of all Jews to Eretz Yisroel — the land of Israel. It sees an immediate need to place Judaism over any other 'ism' and ideology and calls for the use of the yardstick: 'Is it good for Jews?'"

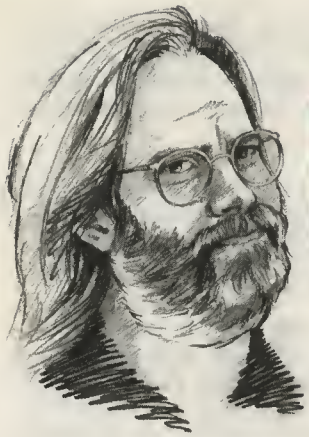
Naturally, neo-Nazis believe in a similar, yet conflicting yardstick that asks, "Is it good for the Aryan race?" For another viewpoint that the world would be a better place if 99% of the world's population would kindly commit suicide, visit the National Alliance web site (`www.natvan.com`) and discover that "After the sickness of 'multiculturalism,' which is destroying America, Britain, and every other Aryan nation in which it is being promoted, has been swept away, we must again have a racially clean area of the earth for the further development of our people. We must have White schools, White residential neighborhoods and recreation areas, White workplaces, White farms and countryside."

Of course, even being white doesn't mean you're necessarily safe from attack. If you're a white gay man or woman, watch out for The Westboro Baptist Church (`www.godhatesfags.com`) the next time you visit Topeka, Kansas. This church engages in "daily peaceful sidewalk demonstrations opposing the homosexual lifestyle of soul-damning, nation-destroying filth. We display large, colorful signs containing Bible words and sentiments, including: GOD HATES FAGS, FAGS HATE GOD, AIDS CURES FAGS, THANK GOD FOR AIDS, FAGS BURN IN HELL, NO TEARS FOR QUEERS, SIN & SHAME NOT PRIDE, FAG=ANAL SEX=DEATH, FAG=AIDS= DEATH, GOD IS NOT MOCKED, FAGS ARE NATURE FREAKS, GOD GAVE FAGS UP, NO SPECIAL LAWS FOR FAGS, etc." While anti-gay activists quote the Bible to prove that homosexuals deserve to die, they conveniently forget any other Biblical passages that may refute their way of thinking such as forgiveness.

While it's easy to dismiss the ideas of various hate groups as the work of lunatics, fanatics, or mad men, keep in mind that much of what you "know" has come from your government, church, or school; and who knows what the ulterior motive might really be?

Just remember that any time you join an organization based on race, religion, or nationality, it's easy to suddenly target people outside of your organization as the enemy. Hatred can come in all skin colors, religions, and nationalities, so rather than blindly condemn entire groups of people for the actions of a few, take a moment and ask yourself what goal you hope to achieve and whether the destruction of an entire race will really help you achieve it.

As long as people take the time to think and communicate with one another, maybe we'll all be able to live in peace. But the moment one group believes that it has the right to dictate its demands on others, that's when we're all going to be in trouble.◆



Java Jitters

by Doug Shaker

A LITTLE MORE WORKING CODE AND SOME ARCANA EXPLAINED

Last month, I worked on the design for some of the data acquisition part of my Java stock analysis program. In brief, I am planning a neural net analysis program that will rely, in part, on a history of stock quotes for its predictions. A object called *QuoteLibrarian* will be responsible for finding and storing the quote data. When asked for a quote, *QuoteLibrarian* will look in its permanent storage for the quote and, if it isn't there, will ask *NetQuoteGetter* to get a quote from the web. *NetQuoteGetter* will look at a list of *NetQuoteSources* and ask each of them for the quote, one by one, until it gets an answer. The answer will be in the form of an object called, not surprisingly, a *Quote*. This Quote will get passed up the line to *QuoteLibrarian*, who will then pass it off to the object which requested it originally.

Doug Shaker is a free-lance technical writer in California. He has one wife, two children, three pets, and five computers. The computers are obviously out of hand. He can be reached via e-mail at **mailto:** `doug@theshakers.org`. Yes, that is a personal Internet domain. We told you the computers were getting out of hand.

I said I'd try to implement these classes this month. Ah, impetuous me—now I have to deliver on that promise. The first thing I decided to do was to put together a dummy application that would let me call *QuoteLibrarian*. This actually turned out to be easier said than done and at least a little instructive.

The first thing you (and I) need to understand is that there are two distinctly different things you can build with a Java compiler. You can build **applications** and you can build **applets**. Java applications are just like applications in any other language in the world in that they can write to disk, erase your files, start other programs, etc. Applets, on the other hand, are web objects which are part of a web page and which are started on a machine when a web browser downloads the page containing the applet. Since average people browsing the web doesn't like the idea of applets trashing their systems, applets are severely restricted in what they can do — they can't write to disk, they can't connect to network hosts other than the web server from which they came, and they can't start other programs or load libraries on the web browser system. Because my program is going to live on my system more or less permanently and because I want to be able to store things to the disk on my system, I am writing an application, not an applet.

If you write a C application, it always starts with a central function called *main*. A Java application can't do exactly that because every function — a.k.a. method — needs to live inside an object. Java applications need to have a **class** which has the same name as the executable file, and that class must have a **method** called *main*. Translating this to something concrete, if my Java application is named *MrDow*, then when I start it up, the Java virtual machine—the thing that makes Java applications run when they are being run— will look in the *MrDow* file for a class named *MrDow*. When it finds the *MrDow* class, the virtual machine will look for a method named main in the *MrDow* class. The virtual machine will start up that method, passing off any command line arguments to the main method as arguments for that method.

Having said that, we still need the right invocation of the right keywords in the right places to make the compiler happy. My mental model for the top level of my application is now something like:

```
class MrDow {
    maybe some variables declarations;
    hocus pocus dominocus main(whatever){
    QuoteLibrarian marian = new
    QuoteLibrarian;

    System.out.println(marian.doSomething());
    }}
```

This won't exactly compile though. At a minimum, I need to get a little clearer on the hocus pocus *dominocus* and the *whatever* parts. I looked it up in one of my Java books and this part of the application really needs to look like:

```
public static void main(String args[])
```

This isn't a whole lot clearer than the *hocus pocus* stuff, but all main methods need to be declared like this. You can just write it down, if you want to—understanding is not necessary.

I think I can explain, though, if you want to know. The public keyword means that the programmer gives this method permission to be called by sources outside the class. Since it needs to be called by the Java virtual machine on behalf of the command line, this had better be true, or we are going nowhere. The static keyword means that this method can only be called at the class level, rather than only in instances. This is a bit arcane. You usually only have static methods if you aren't going to have any instances—i.e. there is only going to be one member of the class so don't go to the trouble of making instances—or if you want to use the static methods to initialize some-

thing about the class. After the static keyword, the void *keyword* means that this method won't return a value. **Main** is the name of the method. The string *args[]* that is inside the parentheses after main is an array of strings used as a way of passing command line arguments to the inside of the program from the outside. Is all that clear now? Good.

When I understood all that hocus pocus, the top level of my application began to look like this:

```
import java.util.Date;
class MrDow {
public static void main(String args[]) {
Date today = new Date();
QuoteLibrarian marian = new QuoteLibrarian();
Quote todayQLIX = marian.getQuote( "QLIX", today);
System.out.println(todayQLIX.toString());
 }
}
```

The **import** line gives me access to the Java system utilities having to do with dates. I use one of these to get today's date. The **class** line declares the name of the application and class for this file, *MrDow*. The third line has all that mumbo jumbo I have already explained.

In the fourth line, I create a new Date object and give it the name of today. By default, Date objects are set to today unless you put some arguments inside the parentheses when you create them. This:

```
Date newYears = new Date(98, 1, 1);
```

would create an object named *newYears* and set to New Year's Day for 1998. Years are specified in relation to 1900, so Date(101,1,1) would be New Year's Day, 2001. I don't know if negative years work or not, but I expect they do.

In the fifth line, I create a *QuoteLibrarian* object named *marian*. Why Marian? Marian was the name of the librarian in the musical *The Music Man*. One of the songs in the musical has the title "Marian the Librarian" and it stuck in my memory banks. Then, in the sixth line, I ask marian to get me today's quote for a stock with the symbol *QLIX*. I store the result in a *Quote* object named *todayQLIX*. Then, in the last line, I ask *todayQLIX* to make a printable string out of itself and I take that result and ask the system to print it out.

If you tried to compile this code you would get, as I did, error messages saying that the classes *Quote* and *QuoteLibrarian* are undefined. Let's tackle *Quote* next, as it is simplest.

Quote doesn't need to do much but hold information. It needs to hold a date, a stock symbol, and a price and then report on them when requested. **Listing** 1 (see page 81) is pretty much what we need—or at least I think it is. I have tried to comment the expletive out of this listing, hoping to make it obvious what I am doing, but, Lord knows, whenever I read someone else's code, it is never obvious, no matter how many comments there are in it. So, let's go through it.

The first chunk of code, from the beginning down to just before the import statements, are two comments. Then, in the import statements, the first one brings the Java class *Date* into the file. The second import statement brings the Java class *Double* into the file.

This class, *Double*, serves some explanation. If you have ever programmed in C or, for that matter FORTRAN, you should be familiar with the double precision floating point numbers, usually referred to as *doubles*. They are a fundamental numeric data type in most languages, and Java is no exception. Although *nearly* everything in Java is an object, there are a few things that aren't—the things that aren't are called the primitive data types. The primitive data types are, boolean, char, byte, short, nit, long, float, and (our friend) double. If you want to use these primitive data types for simple operations they are there and don't carry with them the mental and computational baggage of full objects. This means, for example, that you can add two numbers together

```
x = 3.14159 + 1040.99999
```

without having to declare 3.14159 and 1040.99999 as two floating point objects.

If, on the other hand, you really want an object in your code, there are "wrapper" classes that convert the primitive types into objects. The class *Double* is the object equivalent of the primitive data type double. In general, you can do more things with the objects than you can with the primitive data types, so they are more capable but less efficient. For this part of the code, efficiency is unlikely to be of much consequence, so I opted to store the quote price as a *Double* object. I therefore needed to import the Java class that implements *Double*.

After the lines that import the classes, we start the class definition with `public class Quote`. *Quote* needs to be a public class, so we can pass it around between all the different chunks of the program.

After the class declaration, there is a short comment, then three lines where I define the variables that I will use to store the quote information. The stock symbol is stored as a *String* object, the stock price is stored as a *Double* object, and the quote date is stored as a *Date* object. These variables could have been labeled as "public" variables if I wanted other objects to be able to read them directly. However, as I mentioned in my last column, it is usually a bad idea to allow variables of a class to be directly accessed by other classes. For one thing, it prevents you from changing some of the variables from assigned values to calculated values. Instead, you should have a set of methods for setting the variables—sometimes called mutator methods—and a set of methods for getting the values of the variables—sometimes called *accessor* methods. These methods are defined further down in the class definition where there are several methods that start with the phrase *get*.

After the variable declarations, I define two constructor methods. When another class wants to create a *Quote*, it will do something like:

```
Quote someQuote = new Quote( someStock, somePrice,
    someDate)
```

and the Java virtual machine will create a new *Quote* instance to suit. Since the *Quote* class is so simple, all the constructors really do is capture the information that is passed to them in the creation call and store that information in the internal variables. There are two versions of the constructor method, since I wanted to be prepared whether I got passed a double primitive data type or I got passed a *Double* object.

Then, after the constructor methods, there are the accessor methods. These are *real* simple. They just return the values of the internal variables.

Finally, we have a special method called *toString*. All Java objects have a *toString* method somewhere in them. Unless you define it otherwise, it will be the default *toString* method inherited from Object. The *toString* method is used when you pass an object to a printing kind of object – more precisely, any instance of the class *PrintStream*. When this happens, the *PrintStream* instance will call the *toString* method in the object to be printed and will print the result. For example, if I write

```
System.out.println( todayQLIX );
```

then the system will call the *toString* method for *todayQLIX* to find the characters to put on the screen. If you don't write a *toString* method, then your object will inherit another, much less useful, version of *toString* from somewhere higher in the Java object hierarchy. For your sanity, you should write a useful *toString* method for all of the objects you are likely to want to print.

OK, now we have *Quote* laid out. Maybe there are flaws in it, but we won't know until we get some more classes written. The next thing I want to try to write is *NetQuoteSource*. This turned out to be much harder than I had thought it was going to be. I eventually solved it with the aid of a book called ***Hacking Java: The Java Professional's Resource Kit***, by Mark Wutka (QUE, ISBN 078970935X, **$59.99**).

Here's my difficult:. Most of the time, when I am browsing the web, if I fill out a form and press the submit button, some slightly encoded version of what I typed in shows up at the top of my browser as the URL. The web server at the other end grinds away at this fake URL, then returns the answer that I wanted. I had figured, when I was going to get a quote, I would just go to a brokerage house's web page, look up a quote, then copy down whatever was written at the top of the browser and that would be enough use in my program. I went naively to Charles Schwab & Co's web page (`www.schwab.com`) and asked for a quote for a stock. But none of the information I typed showed up as the URL! I still got back the quote. What was I going to use for my program's URL?

Obviously, I had misunderstood something about forms. It turns out there are two ways to submit information to a form and the web page designer can choose either one. One is submission by query and one is submission by post. The ones that are submitted by query act the way in which I had expected them to act—the information that is typed in is converted to part of a CGI-related URL which is then sent across the net to the web server. However, when the form is submitted by post, a special TCP/IP packet is put together with just the form information and it is sent directly to the web server without showing up as a new URL. This is more difficult, but more efficient than submitting form information by. ***Hacking Java*** has a good example of how to send data to a web server that is expecting the form to be submitted by post. **Listing 2** (see page 81) shows my version of it.

This version is incomplete. Right now *NetQuoteSource* is set up as an application in its own right, instead of as a class called by other classes. This is because I wanted to be able to test the code some before I printed it in a national magazine. In the final version, I would expect the variable *stockSymbol* to be passed down to the *NetQuoteSource* when it is called by *NetQuoteGetter*. And, I would expect the request string to be constructed from stockSymbol and other fields that are local to *NetQuoteSource*.

Going through the main method briefly, I ask the system for a connection to Schwab's web server and I store that connection in *serverConn*. Then I configure *serverConn* so that I can do either input or output over the connection. I also ask the system to not use the browser caches for this connection — I want a fresh quote from the Schwab server, not one that has been sitting in the cache for a week. Then I do some mumbo-jumbo to construct a header for the TCP/IP packet that I don't really understand. It looks like I am telling the web server on the other end that I am sending it data for a program and telling it the length of the data that I plan to send. Then I push my request out over *serverConn's* output stream and close the output stream.

Then, I open *serverConn's* data input stream and gather the data from that stream into a string. Then I should parse that string to get the price of the quote, but I haven't figured out a good way of doing that yet. You see, I had thought I would get something simple like a number in the response. Ah, silly me. Instead, the response looks more like this:

```
<TR><TH ALIGN=right>Last<BR><Trade:></TH><TD>7
<SUP>5</SUP>/<SUB>8</SUB></TD>
```

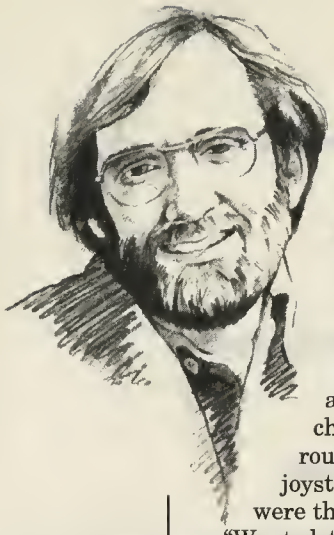
And this is after most of the crap has been filtered out. In case you don't read HTML, this is a table entry in which subscripts and superscripts have been used to write the number 7 and 5/8ths. In a move that is typical of computer programming in general and mine in particular, I had forgotten that stocks are quoted in eighths and that the brokerage web designer might go to some trouble to present those eighths in a nice format. Now I need to figure out how to get a number out of this sludge in a way that might generalize across several different quote sources. And I need to figure out a way of reintegrating this code back into the main application that I'm building. We'll do that next month.◆

LISTING 1

```
/* Defines Quote

Should have the following methods:
   getStock
   getPrice
   getDate
   toString
and the usual constructors.*/

/* Import the Java system classes that
define Date and the class Double (as
opposed to its twin, the numeric type
double.*/
import java.util.Date;
import java.lang.Double;

public class Quote {
   // We store the actual data in these items.
   String stockSymbol;
   Double stockPrice;
   Date quoteDate;

   // Define the constructor methods.
   // First one for the case in which we are
   // handed a price in object format (Double).
   public Quote( String s, Double p, Date d)
   {
      stockSymbol = s;
      stockPrice = p;
      quoteDate = d;
   }

   //Now a constructor for the case when we are
   //handed a price in numeric type format
   //double (lower case "d") as opposed to
   //then Double object (upper case "D").
   public Quote( String s, double p, Date d)
   {
      stockSymbol = s;
      stockPrice = new Double(p);
      quoteDate = d;
   }

   //Some public methods to let people get at
   //the data from outside.
   public String getStock()
   {
      return stockSymbol;
   }

   public Double getPrice()
   {
      return stockPrice;
   }

   public Date getDate()
   {
      return quoteDate;
   }
   //A public method that returns a printable string with the
   //contents of the quote.
   public String toString()
   {
      return stockSymbol + "closed at " + stockPrice
            + "on " + quoteDate;
            }
}
```

LISTING 2

```
/** NetQuoteSource

Set up as an application rather than a regular
class so that I can test the code.

*/
import java.net.*;
import java.io.*;

class NetQuoteSource {
   // stockSymbol would ordinarily get passed
   // down from the calling class.
   String stockSymbol = "QLIX";
   String nqsResponse = "";

   public static void main(String args[])
   {
      try {
       // This stuff should get initialized somewhere else.
         URL destURL =
new URL( "http://schwab.quote.com/fq/schwab/quote" );
         String request = "request=Delayed+Quote&symbols="
 + stockSymbol + "\r\n";

       //Open a connection to the web server.
         URLConnection serverConn = destURL.openConnection();

       //Tell Java that we intend to do output and
       //input over this connection
         serverConn.setDoOutput(true);
         serverConn.setDoInput(true);
       //Tell Java not to get the results from the
       //browser caches – get it fresh from the server.
         serverConn.setUseCaches(false);

       //Mumbo jumbo that you need to do.
         serverConn.setRequestProperty(
            "Content-type","application/octet-stream");
       //The server needs to know exactly how long a string
       //I am planning to send it.
         serverConn.setRequestProperty(
            "Content-length",""+request.length());

       //Now send the string over the output stream associated
       //with the connection.
         DataOutputStream outStream = new DataOutputStream(
            serverConn.getOutputStream());
         outStream.writeBytes(request);
         outStream.close();

       //Open the connection for input.
         DataInputStream inStream = new DataInputStream(
            serverConn.getInputStream());
         int ch;

       //Put the input in a String
         while ((ch = inStream.read()) >=0){
            nqsResponse = nqsResponse + ch;
         }
       //Close the input stream.
         inStream.close();

            //Now I need to parse that String to get
       //the price out.
       //  But I haven't done that part yet.
                  System.out.println( nqsResponse );
      } catch (Exception e){
         e.printStackTrace();
      }
   }
}
```



EDUCATION LINK

by Rea Andrew Redd

YOUR NEXT CAREER IN EDUCATION

About a decade ago Gary Larsen, in his "Far Side" comic strip, drew two admiring parents fawning over their nerd child sitting in front of a blank TV surrounded by scattered game cartridges with a joystick in his flinching hand. Both parents were thinking of the same classified which read, "Wanted to start at $60,000 a year, an electronic game enthusiast. Must be dedicated to the field and have started before the age of five. Must be willing to play electronic games 8 to 12 hours a day. Pay starts immediately."

Rea Andrew Redd lives and works in southwestern Pennsylvania where he manages a high school library, teaches European history and Scholastic Achievement Test preparation. On occasion, he reenacts American Civil War battles with the Ninth Pennsylvania Reserves, an historic, military impression unit. E-mail Rea at: redd@genesis.duq.edu

Larsen could redraw it today and replace "play electronic games" with "surf the net." However, a new study confirms, for the first time, that surfing the net can increase a student's classroom achievement. Research from the Center for Applied Special Technology associates students who have online access with better comprehension, communication, and presentation skills. Another recent survey by the National Association of Colleges and Employers shows an increasing demand for graduates with computer skills. Graduates in computer science, information systems, and computer programming received 6.2 % of job offers in 1996, which is up from 4.7% in 1995. Starting salaries increased 6.1% in 1996 to $33,712.

At this point you may have asked yourself, "What do I need to know about the electronic dimension of education?" Perhaps you're an undergraduate who wants a cutting edge resume; or, you're already working and you need graduate credits for certification, a union contract, or to reach the next pay scale. When students, you included, no longer need to go somewhere for education, their accumulated credits are meaningless. Employers may ask, "What do you know?" The situation currently creates an opportunity to base achievement of professional competency on a portfolio. Students are becoming clients, and teachers are noticing that the standards of education are being redefined.

A campus library's well-established measures — such as the number of books and periodicals — now include, and may be dominated by, measures of electronic access to both campus and regional resources. Faculty's role is also expanding beyond the dispensing of knowledge and distilled wisdom. Now, it also includes the ability to make sense of all the available information resources.

If you think you're behind the curve and that you have to play catch-up, think again! The 1996 Campus Computing Survey shows that, although technology is saturating American campuses, the rate of implementation by the faculty is slowing. Professionals will be needed in two emerging fields: Instructional Integration (II) and User Support (US). One-fourth of those polled responded that II is the single most important issue on their campuses. Obviously, if you are in an undergraduate degree program or earning graduate credits, then your course selection should be based toward II and US seminars, workshops and courses.

Furthermore, one-third of the campuses polled are using or have plans to use the Internet and the Web as an instructional resource. Universities are beginning to offer certifications and degrees in II and US fields. Stanford University has added the Information Resource Specialist Program (IRSP) which is a two-year program offered through the Libraries and Academic Information Resources Department. This program is innovative because the student becomes a consultant in a particular department and provides discipline-specific support to the faculty. The student gains experience in multimedia, networking, and the Web's classroom applications. More information about Stanford's IRSP is available at **http://www-leland.stanford.edu/dept/SUL/irs**.

The Center for Applied Technology report is available by calling **202-393-2427.** For information on the National Association of Colleges and Employers, visit **http://www.job.org**. And, the Campus Computing report is available by sending **$35** to: Campus Computing, Attention: Kenneth Green, PO Box 261242, Encino CA 91426-1242.

THE ELECTRONIC BLACKSBURG VILLAGE

The Virginia Polytechnic and State University (VPSU) and other Montgomery County (Virginia) dreamers are celebrating the fifth birthday of BEV, the Blacksburg Electronic Village. In a virtual world, this rural Shennandoah Valley/Blue Ridge Mountain has a community presence. Blacksburg reports that about 80% of its 34,590 residents use home computers. According to the Chronicle of Higher Education, in 1992 VPSU and other residents embraced the Internet and, with the help of the town of Blacksburg and Bell Atlantic, gave birth to BEV.

Originally conceived as a network for professor and student remote access to academic resources, BEV has been in front of the electronic wave. VPSU, Blacksburg and Bell Atlantic allowed the townies to hookup for $8.60 per month. Bell Atlantic, thinking that the town/gown collaboration would be a good experiment to test some new technology markets,

decided to spend $7 million to upgrade switches and connections. Would an entire community access the Internet through a local university for less than $9 a month? VPSU also saw it as an experiment, and as an expansion of the educational environment. Blacksburg businesses saw it as a development of the marketplace. Now, what does BEV look like at age five?

Blacksburg has been offering $500 grants for the development of web pages. By the end of 1995, $15,000 in grants had been dispensed. Currently, four VPSU staff members work directly on BEV doing research assistance, training, and site maintenance. Senior citizens have a strong presence through a local history project. Generally, BEV gets mixed reviews from the business community since Internet sales have been sluggish.

Apparently, the enterprise business life has improved. A popular Blacksburg tavern has a web-browsing computer next to the pool table which is the ultimate authority for settling bar room bets. The antiquarian and used book store web site does not have many hits, but the toy store has shipped orders to other continents, thanks to the Web. Government at the town and county level, has not entirely bought into the electronic village concept, neither has embraced the net. Users can send complaints, but they can't pay taxes or parking tickets electronically. Montgomery County has no "bank-by-net." Local, not-for-profit organizations were not on the Web until Apple Computer offered grants and expertise to do so. Terminology and index terms on the net have proven difficult for the rural population. One doctor points out that to reach local users, topics like "high sugar" and "diabetes" should be cross-referenced.

At its fifth birthday party, BEV should be congratulated for successfully bringing together town and gown. Furthermore, it has enhanced communication among senior citizens and created new market opportunities for some local businesses. Maybe at its tenth birthday, BEV will celebrate the of municipal and county government arrival to its network. It may look back and thank its lucky star for online banking software that allowed the local governments to collect tax revenue from people sitting at their homes in front of their computers.

THE K-12 BROWSER

As mentioned above, II and US are emerging fields. Classroom Connect, one of America's top ranked K-12 curriculum developers, is launching II units each quarter. Teaching with the Internet, a series of curriculum packages, has expanded beyond introductory and discipline-specific volumes. The Internet Curriculum Planning System is an annual subscription package ($199), which includes lesson plans, activity sheets, project ideas, and method tips. Extensions to this series cost $30 each and cover topics such as using the web to teach K-12 or Social Studies. These extension products include lesson plans, activities, and a CD-ROM with Internet links.

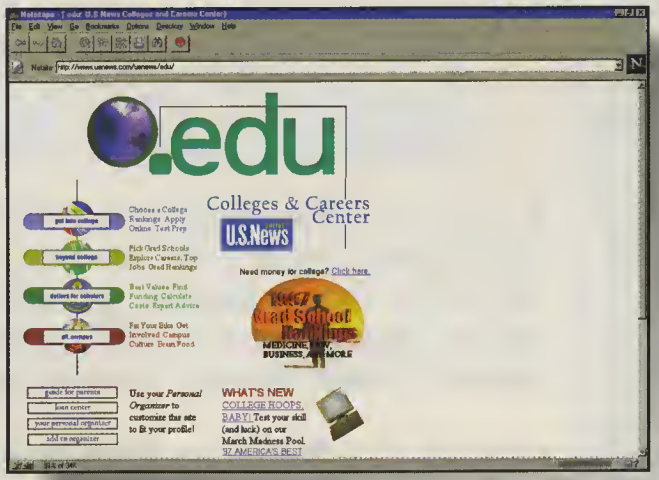
The Science Internet Curriculum Guide ($60) is for the 7-12 classroom and focuses on earth, life, and physical science. Its CD-ROM includes the Netscape Navigator, Cyber Patrol, authoring software, and science-related shareware. The Language Arts Internet Curriculum Guide, which contains online project lesson plans and a CD-ROM, will be introduced this spring.

Classroom Connects' WebGuides ($15 each) are equally helpful. These volumes are discipline-specific indices of web sites for K-6, 7-12, music, math, science, and geography. Visit Classroom Connect at **http://www.classroom.net**, or e-mail can be sent to **connect@classroom.net**. Voice-call them at **800-638-1639** or fax them at **717-393-5752**.

Another K-12 resource, which is among the best on the Web, is the Social Information Research Service (SIRS). In addition to the thousands of context-rich, full-text articles from some 1,200 sources, this package also contains several appealing technology and content features. It has a point and click interface, relevancy rankings, natural language searching, and monthly updates. Licensing costs for this package are flexible. For a SIRS web preview, visit **http://www.sirs.com/products/software/research/preview.htm**.

THE COLLEGIATE BROWSER

U.S. News and World Report's web site now offers its popular ranking of American colleges (**http://www.usnews.com/usnews/edu**). This free site is part of the magazine's online service. Users can sort information on nearly 400 colleges by rank, cost, region, academic program, and other categories. A nice feature is the site's links to colleges' web sites and related stories from U.S. News and World Report's electronic archive. Some colleges offer enrollment applications, which can be completed online.



Foreign Languages

International language dictionaries have been abundant on the net, but grammar guides have been lacking. However, Robert Beard, a professor of linguistics at Bucknell University, offers a new web site with the rules and usage of grammar. This site also has links to dozens of tutorials and reference materials. Over 20 European, African, and Asian languages are represented. Even rare and extinct languages are included such as Quechua, which is spoken in the Andes Mountains,

or the 5,000 year-old Mesopotamian language of Akkadian. Visit Professor Beard's site at **http://www.bucknell.edu/~rbeard/grammars.html**.

History

H-Net is a humanities and social sciences site for graduate students in history. It provides them with academic and career information, graduate school admission data, historical research, dissertation tips, and links to graduate history departments. Visit **http://h-net2.msu.edu/~grad/fyi** to access this resource.

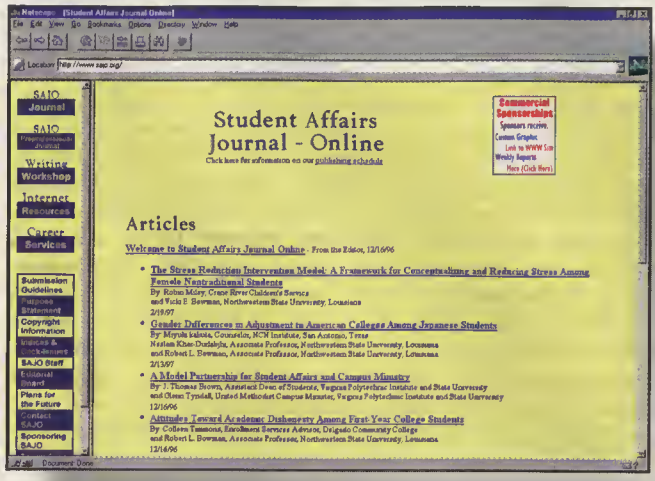
H-Itam is a moderated forum for discussion among scholars and activists interested in the Italian-American experience. It is available through **listserv@h-net.msu.edu** as is another moderated forum among scholars involved in California studies. Book reviews, course syllabi, and the California Studies Association are available through this resource.

Lajsa is a moderated forum discussing history, culture, and news related to the Jewish population in Latin America. It is located at **listproc@mcfeeley.cc.utexas.edu**. The Illinois Historical Society's web site directs its audience of students, researchers, and educators to online resources related to worker history. Site visitors can follow links to such diverse topics as coal mining in northern Illinois, Samuel Gompers and the founding of the American Federation of Labor, and labor unions before the Civil War. A visit to **http://www.kentlaw.edu/ilhs** will put you in touch with labor in the Land of Lincoln.

Northwestern University is offering a database of speeches and documents related to the history of rhetoric. The Douglas Archive of American Public Address can be searched chronologically or by speaker, subject, or title. The URL is **http://douglass.speech.nwu.edu**.

COLLEGE ADMINISTRATION

The Student Affairs Journal Online offers news and peer-reviewed scholarly articles of interest for professionals in the field of student affairs. This site includes an online workshop on professional writing styles and links to related organizations and publications. The URL is **http://sajo.org**.



The National Council of Black Students (NCBS) maintains a web site that includes a mission statement, announcements, a calendar of events, and membership information. Go to **http://www.eiu.edu/~ncbs** for more information on the NCBS.

Information Science

Electronic Minds offers access to an electronic magazine discussing how technology is shaping virtual communities and the Web. The site includes discussion forums, news, commentaries, a virtual community directory, and hypertext publications. Visit Electric Minds at **http://www.minds.com** for a thoughtful speculation of our virtual future.

Library Science and Reference Inside Information offers access to a directory of federal web sites, independent agencies, and commissions. Highlighted subjects include statistical data, maps, business and market research, and U.S. History. At **http://www.uncle-sam.com**, you'll find this pathway through the federal maze. H-Itam is also listed here. A moderated discussion forum is located through **listserv@library.berkeley.edu**. You can join Web-4lib to converse with other professionals on such issues as server maintenance, information mounting, and collection development. Stac-Net is another discussion group for professionals who wish to develop science and technology projects in the Philippines. It is located at **listserv@seagate.sunet.se**.

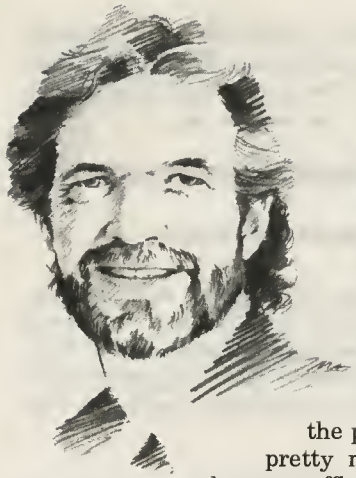
The University of Massachusetts offers a web site entitled "The Center for Intelligent Information Retrieval." The site contains resources pertaining to Research and Development on electronic information systems, natural language processing, multimedia, and medical information. The center's mission statement, membership information, and publications are also available at **http://ciir.cs.umass.edu**.

MEMO FROM THE DEEP POCKETS DEPARTMENT

$1 Million Available for Pennsylvania School

Keystone State students will now have better access to cutting-edge distance learning technology thanks to grants recently awarded by the Pennsylvania Department of Education. Rural counties will benefit most from the grants which were designed to fund programs for distance learning in public schools.

The Pennsylvania Department of Education is looking for schools in 24 counties wishing to obtain or upgrade computer and communication equipment which is to be used for web and Internet based courses. For more information on these grants, visit the Pennsylvania Department of Education web site at **http://www.cas.psu/pde.html**. ◆



MANNING THE WIRES

by Ric Manning

THE WEB IS FERTILE GROUND FOR DO-IT-YOURSELF STOCK BROKERS

Like everyone else, stockbrokers and investment companies joined the pilgrimage to the World Wide Web. They pretty much had to. Their primary customer base — affluent males with disposable incomes — was already there.

But most did little more than erect a few billboards and a post electronic brochures. Some offered stock quotes and a few let clients review their portfolios online. But if you wanted to buy or sell, you still had to pick up the telephone.

For a while, brokers could blame government regulations and concerns about Internet security for their reluctance to offer online transactions. For example, brokers at securities firms don't use e-mail.

But times have changed and the brokers haven't always kept up. Now you can safely shop and even bank online. Why should you have to pick up a phone — and wait until business hours — to trade stocks?

The regulations that worked against online trading are also beginning to ease. Early this year, the Securities and Exchange Commission said that online services such as America Online and CompuServe could accept referral fees from the Charles Schwab & Co. brokerage firm.

Schwab quickly began letting its AOL customers make online trades. And CompuServe made it easier for its subscribers to use Schwab, E*Trade, and other brokerage partners.

The online brokers are chasing a small but increasingly lucrative market. Of the 60 million brokerage customers in the U.S., fewer than 1 million use commercial online services or the Internet. Forrester Research Inc. estimates that there will be 1.2 million such accounts by 1998.

Many online investors are attracted by the convenience of managing their investments from their PC. Online brokerage accounts can be reached any time of day or night, plus there's a plethora of company information and reports online — though not nearly as much as you'd find on pay services like Dow Jones News/Retrieval.

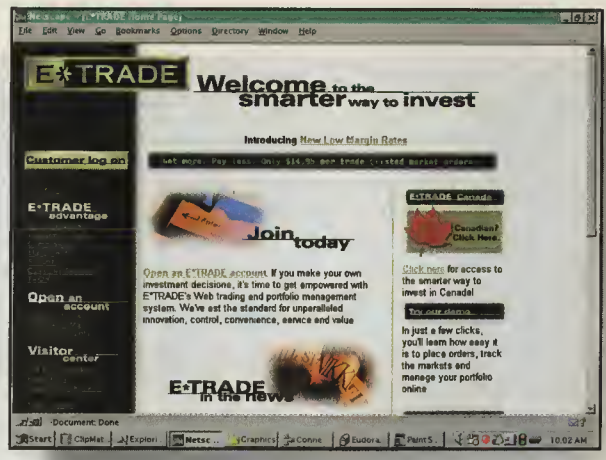
Still others come for the discount prices. Just as Schwab made its reputation by undercutting full-service brokers, new upstart companies are challenging the discount brokers with even lower fees for online traders.

Sherif A. Nada, president of Fidelity Brokerage Group told ***Business Week*** that the full-service firms — and the discounters — are worried about the Internet brokers. "What Schwab did to the full-service firms, Lombard and E*Trade will do to Schwab and the full-service firms," he said.

The competition is likely to heat up even more this year due to a January ruling by the U.S. Securities and Exchange Commission that allows brokerage firms pay referral fees to online services. The ruling said that America Online and CompuServe could collect fees from Charles Schwab & Co. without coming under the agency's jurisdiction.

When the smoke clears, these are the companies that are likely to be still on the field:

E*TRADE
(`www.etrade.com`)



E*Trade, based in Palo Alto, CA, was created in 1983 to handle trades electronically for discount brokers. A few years later, it went into competition with those brokers by offering its service directly through CompuServe and America Online.

E*Trade is now on the Web, where it has used its technological edge to push trading fees to as low as **$15** for most transactions. The service will trade stocks, bonds, and options but not futures. It offers some no-load mutual funds.

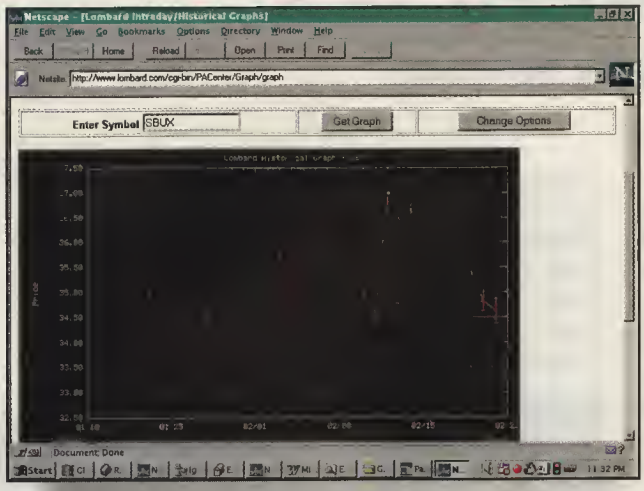
The company has been aggressive in lining up new partners. E*Trade recently hooked up with the PointCast Network to distribute research reports on more than 7,000 stocks through PointCast's Companies

Ric Manning writes about business technology, computers and consumer electronics for ***The Courier-Journal*** in Louisville, Ky. His weekly column called *Home Tech* is distributed to more than 80 newspapers by the Gannett News Service and it's available on the World Wide Web **http://iglou.com/gizweb**

Ric was the founding editor of ***Plumb*** and ***Bulletin Board Systems***, two newsletters that covered the BBS arena in the early 1980s. His freelance work has appeared in several magazines including ***PC/Computing***, ***Mobile Office***, ***PC Week*** and ***Home Office Computing***. Ric lives in Southern Indiana with his wife, two children and a champion Weimaraner. Write to Ric at **ricman@iglou.com**

channel. Investors who open an account with E*Trade receive more detailed versions of company reports, research, market analysis, charts and analytical services.

Lombard Institutional Brokerage Inc.
(www.lombard.com)



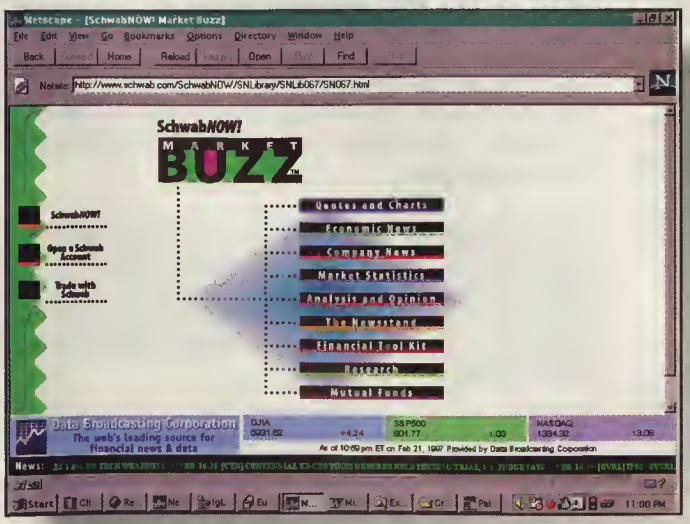
San Francisco-based Lombard is a spin-off from Thomas F. White & Co. Officials say the company has about 7,000 Internet accounts which make up about 15 percent of the company's annual revenue — and they say it will grow to 50 percent in the next two years.

Lombard tries to lure customers with financial information. One of the more popular features of Lombard's web site is its free graph server. Visitors can get a visual picture of a stock's or option's price movements for a single day or over a longer historical period. Casual visitors can also get investment information from Zack's Research Reports.

Traders who open an account with Lombard get even more services, starting with a market summary updated every half hour and proprietary research reports from Thomson Financial.

Traders can also arrange to get real time quotes, monitor their account in real time and track up to ten securities, updated every two minutes, through their Netscape browsers.

Charles Schwab & Co.
(www.schwab.com)



Visitors to the Schwab site can get a few stock price charts in a simple "candlestick" format. Account holders get their choice of charts in 12 different formats.

Customers can also request research reports from services such as Standard & Poor's (S&P), First Call and Morningstar. Prices start at **$3** per report for single requests or **$1.50** each for 100 reports.

Stock and bond traders will pay about **$35** to trade on the Web or about **$30** if they use the company's proprietary software.

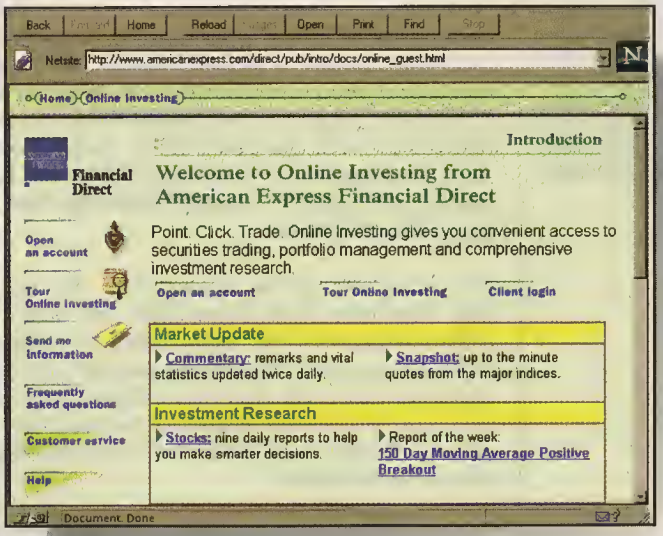
The Schwab site provides business and company news from Briefing.com and it uses Thomson MarketEdge for reports on company earnings and mergers and acquisitions.

ProTrade
(www.protrade.com)

ProTrade, based in Santa Barbara, may have the lowest commissions of any of the online brokers. ProTrade charges just **$12** to trade any U.S. or Canadian equity. The service requires a **$1,000** deposit for a cash account or **$2,000** for a margin account.

ProTrade says it plans to offer free portfolio management for members that have five or fewer securities. Another service still under construction is ProAlerts, a service that will send e-mail or signal your pager if a stock hits your predefined parameters, such as price or trading volume.

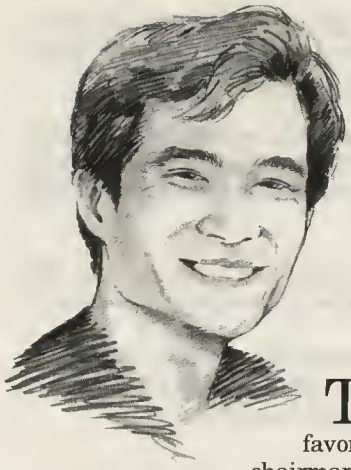
American Express
(www.americanexpress.com)



Online trading at American Express comes in two flavors: an InvestDirect account offers online trading, quotes and account information. The InvestDirect/pt account includes access to news and company research and stock and mutual fund searches.

Research publications include S&P MarketScope company reports, insider trading reports, Zack's earnings estimates and Macro World price forecasts.

How much will all this cost? It's hard to say. American Express doesn't list its prices on its web site. I guess if you have to ask, you can't afford it.◆



BIG BOARD BRIEFS by Wallace Wang

AMERICA ONLINE OFFERS REFUNDS

True to the typical doublespeak language that has made America Online a favorite target for well-deserved scorn, AOL's chairman Steve Case told television's CNBC that the company would not offer refunds to any customers despite any problems they might have encountered trying to access the service. Now under the threat of lawsuits from several states, AOL has bowed under the pressure to offer one free month of service or a refund as much as **$39.90** (equal to two month's of AOL's **$19.95** flat-fee).

So despite Steve Case's callous response to customer complaints, dissatisfied America Online customers are going to get some compensation after all. Then again, getting free months of service will be worthless if you still can't access the service when you want.

If you've been paying $19.95 a month to access to America Online, you can get a cash refund by calling **1-800-827-6364**. (As usual, be prepared to hear a busy signal.) If you'd rather have a one month of free online service in lieu of a refund, send your requests, including name, address, master account screen name and phone number, to AOL Member Refunds, PO Box 511, Ogden, Utah 84402-0511. In case you're just fed up with the whole thing, you can cancel you AOL membership by writing to AOL, P.0. Box 1600, Ogden, Utah 84401, faxing **1-801-622-7969**, or calling **1-888-265-8008**.

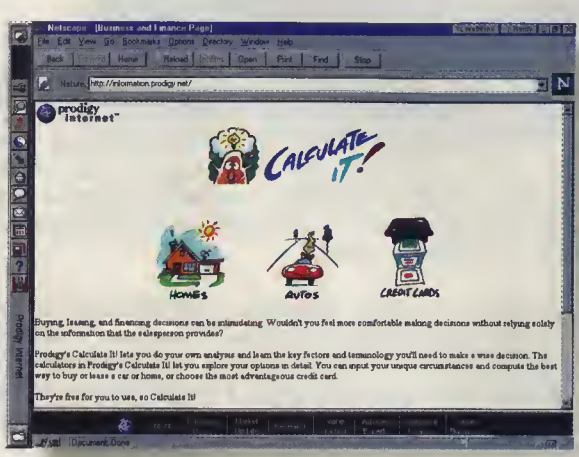
For those who decide to stay with America Online, just remember that Steve Case has asked that all AOL customers limit their usage so everyone can enjoy the service. This is like having an all-you-can-eat restaurant ask that you refrain from eating all you want just so the company can continue making money off other people who won't be able to get what they paid for either.

In case you don't cooperate and insist on using a service you paid for, America Online will pop up a dialog box every 45 minutes, asking that log you off. Of course, some parts of America Online won't display this dialog box, so don't be surprised to find yourself cut off without warning.

PRODIGY INTERNET DEBUTS ONLINE CALCULATORS

Wondering how you can keep your finances straight? Rather than trust a high-priced financial advisor, you can dial into Prodigy's *Calculate It!*, a new personal finance section on Prodigy Internet featuring more than 40 online calculators.

Calculate It!, offered at no additional charge, is available as a pop-up menu choice in the *Business & Finance* section of Prodigy Internet, or by typing the GoTo word: *calculate it*. You can use these calculators to see how much you'll go into debt by purchasing homes, automobiles or other high-priced items that you probably can't afford.



For example, you can use the calculators to help you decide whether you can save money renting or if you'll be better off buying your own home. If you decide to buy, use another calculator to determine monthly payments, closing costs, the differences between 15-year to 30-year mortgages, etc.

BARNES & NOBLE TO SET UP SHOP ON AOL

Barnes & Noble (Keyword: *Barnes & Noble*) has signed a deal with America Online to become the exclusive bookseller in the online service's Marketplace. Online shoppers will receive a 30 percent discount on all hard-cover books and a 20 percent discount on paperbacks. The discounts offered online are higher than those offered in Barnes & Noble retail stores.

"The economics of online retailing are very different from those of store retailing," said Chief Operating Officer Steve Riggio. "Online customers complete their own transaction and therefore not only expect to receive, but are entitled to receive, direct-from-warehouse pricing,"

The deal is Barnes & Noble's first venture into online commerce. The company plans to launch a World Wide Web site after the AOL site is fully operational.

Wallace Wang is the author of ***CompuServe For Dummies, Visual Basic For Dummies, More Visual Basic For Dummies, Microsoft Office 97 For Dummies,*** and ***More Microsoft Office 97 For Dummies.***

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at 70334.3672 compuserve.com, bothekat@aol.com, bo_the_cat@msn.com, or **bothecat@prodigy.net**

MSN INKS A DEAL WITH THE MUPPETS

Microsoft has announced a deal with Jim Henson Interactive to develop interactive entertainment featuring the Muppets exclusively for the Microsoft Network. The first projects, which also will feature new characters created for MSN, are expected to appear this summer. The three-year deal calls for two projects in the first year, three in the second and four in the third.

Details of the projects are still sketchy, although both sides have agreed that the projects will be a mix of games and shows that appears daily or weekly, allowing MSN to create regular viewers similar to a TV show. Microsoft's ultimate plan may be to outflank the television industry by providing interactive entertainment through the Internet. Now if MSN could only squeeze Miss Piggy into a string bikini, it might have a chance of luring away viewers from shows like *Baywatch* and *Melrose Place*.

COMPETITORS PICK UP ON AMERICA ONLINE DEFECTORS

America Online's woes have translated into a windfall for its competitors. Already AT&T has reported three times the number of daily sign-ups in January than in December. Nearly 45 percent of AT&T's latest subscribers were former America Online members, looking for more reliable Internet service.

Even sluggish CompuServe has gotten into the act. After avoiding any form of advertising for years and then wondering why they never could keep up with America Online's skyrocketing growth, CompuServe had the guts to run a 30-second TV spot during the Super Bowl, called the *Busy Signal*. As a final jab in the ribs, CompuServe's ad provided a toll-free number, **1-888-NOT-BUSY**. (In case you missed this ad, you can download the AVI file from CompuServe's web site at `www.compuserve.com`.)

To keep its momentum going, CompuServe plans additional print ads in major newspapers to capitalize on America Online's stupidity. "Given the recent reports of connection problems within our industry," says Scott Kauffman, CompuServe vice president, "we want people to know about the high reliability of CompuServe's worldwide network. In fact, CompuServe members connect on the first try 97 percent of the time."

Prodigy has even seen its daily enrollment jump by 300 percent since America Online's troubles. Prodigy recently offered its own flat-rate pricing scheme but claims it could double membership and still provide adequate service to everyone. Prodigy claims that their members connect on the first call 95 percent of the time compared with 26 percent of the time for the typical America Online member.

MSN LURES HOLLYWOOD TALENT

While rival online services scramble to offer unique forums, magazines, or games for members, The Microsoft Network continues its quest to become the couch potato channel for Internet surfers. Microsoft recently hired Robert Litvak, a veteran casting director for ABC and Warner Brothers, as its new talent and casting manager for the Interactive Media division. Microsoft hopes that Litvak will use his Hollywood contacts to lure more Hollywood veterans to MSN.

"What's interesting is that we get calls on a daily basis about Microsoft versus Netscape, or Microsoft versus Lotus. How about Microsoft versus Disney?" asks Danny Rimer, an analyst with Hambrecht & Quist who follows MSN.

Microsoft's goal is to sign up 3.2 million users by July, a 50 percent increase from the current 2+ million user base. It'slong range plan is to attract the same audience that would normally watch TV. To continue this metaphor, MSN employees even describe content as "shows," which are now ending their first 13-week "season." (Let's just hope that MSN doesn't resort to feminine hygiene commercials to pay for content.)

AMERICA ONLINE HIRES A FORMER CENTRAL INTELLIGENCE AGENCY EMPLOYEE

In response to the threats from hackers (but ignoring the threats from pedophiles; see the next section below), America Online has hired Tatiana Gau, a former Central Intelligence Agency employee and expert on industrial espionage.

"Whether it's hackers or people who password fish, she will make it very difficult for people who engage in activities that are outside AOL's terms of service," said Wendy Goldberg, a company spokeswoman. "It's more than security. It's maintaining the integrity of the AOL experience."

Gau comes to America Online from the CIA's Office of Security. As part of her new duties, Gau will coordinate a staff of 20 to catch hackers using the service through fake credit cards or breaking America Online's Terms of Service.

Gau attended Pushkin University in Moscow and holds a B.S. from Georgetown University. She is a member of the Society of Competitive Intelligence Professionals, the American Society of Industrial Security and the Association of Former Intelligence Officers. Besides speaking English, she also speaks French, Italian, Spanish, Portuguese, and Russian.

So how effective will Gau be in policing America Online? Considering the next section, she's either ignoring pedophiles in favor of hackers, or she's not doing her job at all.

PEDOPHILES ONLINE

A Florida woman, is suing America Online for allegedly allowing a man, later convicted as a sex offender, to use the service to sell images of his sex acts with her 11-year-old boy and two other youths to pedophiles.

The lawsuit contends that AOL has created "a home shopping network for pedophiles and child pornographers," arguing the online service is responsible for the content of the material available on its services and has failed to enforce its rules and monitor its subscribers. Named in the suit was a former Palm Beach schoolteacher, Ron Russell, who was convicted of an array of sexual charges. Russell was arrested in February 1995 after a federal investigation into a ring of men, several of them teachers, who swapped child pornography by computer. Currently, he is serving a 22-year sentence for attempted sexual battery and a 14-year sentence on child pornography charges.

Given the fact that 24 hours a day you can find at least a dozen chat rooms serving up racy content, sexual innuendoes, and offers to trade GIF files of naked people, does anyone seriously believe America Online enforces its rules prohibiting members from transmitting obscene or illegal material? After all, pedophiles and prostitutes pay their bills just like everyone else, and if you can make a quick buck off them in the process, why not do so just like America Online?◆

CYBERWORLD MONITOR

Frank X. Sowa

INDEPENDENCE IN CYBERSPACE WILL BE UNDERMINED IN 1997 BY ACCESS FEES

"Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather."

From "A Declaration of the Independence of Cyber-space" John Perry Barlow Feb. 8, 1996, on the Internet

Frank X. Sowa is president of The Xavier Group, an international consultancy providing strategic planning, forecasting, training, and development of business and communications systems for organizations since 1981. As a certified software consultant for Softarc's First Class, and a reseller for other companies, he configures customized BBS systems for organizations, complete with "regular content updates." Sowa is also founder and sysop of SEED.NET (412) 487-5449, "the online incubator" for small businesses, a seamless BBS-to-Internet (PPP) provider, with business start-up assistance and seed capital available online. franksowa@aol.com

The multinationals, with their friends in high places, are working harder than ever to establish their empires footholds in cyberspace. And it looks like 1997 will finally be the year their empires succeed, unless the average netizen finally hears the call to defend the Internet and forces government's regulatory hands.

WHEN AT FIRST YOU DON'T SUCCEED, TRY GOVERNMENT INTERVENTION!

The telecommunications, broadcast and entertainment giants of the 20th Century have never understood the paradigm of "cyberspace." In their view, they only have one vision: Global commerce on the Net is expected to reel in **$85.6 billion** by 2000, up from an estimated **$2.2 billion** in 1995, and they want to "control" the lion's share of that trade by maintaining controls over content and access. This is wishful thinking by strategists who have only limited experiences venturing out on the Net.

Many of these companies have already shown us they have no idea how to develop online content, how to maximize access, how to keep customers, how to operate in a virtual world profitably. Thus, their initial ventures out into cyberspace have been anything but successful.

AT&T has redesigned its original online concept at great expense so many times, that they now lack any credibility in the field whatsoever. Recently, WorldNet went through its sixth major upheaval since its inception. The Microsoft Network (MSN) likewise has faced cutbacks in recent months. (But at least they understand how to put a positive spins on their disarray—leading people to believe it was planned that way.) Other examples among the multinationals worldwide abound. To their dismay, they continue to be walked all over by garage-based start-ups, that creatively understand what cyberspace is all about, as has been reported in ***Boardwatch*** for some time now.

But, what the multinationals lack in creativity and dynamism, they make up for by "paying for friends in high places." In the last U.S. presidential election, AT&T, the Baby Bells, other telecom, broadcast and entertainment companies led in financial contributions to both parties, outdistancing online entities by almost 20:1.

THE EMPIRE STRIKES BACK

The multinationals are moving the cyberturf battle to a more familiar territory—a territory where their pandering and ability to manipulate both the rules and the players by throwing perks and money is potentially within their grasp. There, they can manipulate "polls" and information in such a way that it becomes obvious that the only "politically expedient" approach is to cater to their whims.

By "buying off" key players in the Executive and Legislative Branches who run the committees that control the purse strings and regulatory environment. They hope to sway public and commission opinion to see the world from their point of view.

For Internet start-ups, it's like being a boxer in a title fight, and being warned by the referee several times to "keep it clean" or he'll declare your challenger the winner; while your opponent continues to pummel you "below the belt."

TELECOMS PUSH FOR ACCESS FEE LEGISLATION

After some hard lobbying by the telecom companies, notably Pacific Telesis and Bell Atlantic, the Federal Communications Commission (FCC) agreed in December to explore ways to ease network congestion caused by soaring Internet usage which the phone companies contend is "leading to a breakdown in the public telephone network unless Internet providers are forced to pay the phone companies 'access fees' for using local lines to route Internet traffic."

Bell Atlantic, for example, who just launched its own ISP service at an aggressive **$17.95** flat-fee per month, had already registered its request with the Pennsylvania Public Utilities Commission, to increase access fees from **$300**/month to **$18,000**/month for "other" ISPs located within the state. The commission (who has been stacked with Bell Atlantic loyalists) agreed with the request, until a class action lawsuit was filed against Bell Atlantic and the commission by other Pennsylvania ISPs to

stop its implementation. The ISPs contended that such access fees were anti-competitive, and that they would force the majority of start-ups out of business. The new tariff now sits in limbo until the Spring of 1998, awaiting federal intervention by the FCC.

According to Lee Bauman, a Pacific Telesis vice president , the absence of such compensation for the phone companies is definitely going to create a service breakdown, because he says, telephone companies need the extra monies to upgrade their networks, which were originally designed to handle voice, not data. Bauman told the FCC, "The lack of access fees has now become a critical roadblock to the development of new, more efficient products for the rapidly growing Internet markets." He said this in a year when both Pacific Telesis and Bell Atlantic reported record profits for their shareholders.

FCC TAKES ON THE DEBATE AT THE FEDERAL LEVEL

The FCC's request for public comments on a "Notice of Proposed Rule Making on Access Charge Reform" raises the question: "Should ISPs be required to pay phone companies per-minute access charges, which will probably be passed on to the ISPs' customers?"

The introduction states: "Since 1983, there has been an ongoing debate about whether enhanced service providers [ISPs] should be required to pay access charges, based on the contention that these companies use local networks in the same manner as long-distance carriers.

"In June 1996, four local telephone companies (Pacific Bell, Bell Atlantic, US West, and NYNEX) submitted studies to the FCC concerning the effects of Internet usage on these carriers' networks. The companies argued that the existing rate structure did not reflect the costs imposed on local telephone companies to support Internet access, and that Internet usage was causing congestion in part of the local network. In connection with these studies and other pleadings, several local phone companies have asked the FCC for authority to charge interstate access charges to ISPs."

INTERNET CONSUMERS WILL FOOT THE BILL

Internet consumers will end up footing the bill if the phone companies get their way, passed on in the form of higher rates. Not only will access fees drive up the cost of using modems and digital connections via the phone lines to get on the Internet, but these excessive tariffs will drive 85% of the ISPs—those that are small or marginally-profitable — out of business providing consumers with far less options of who they get their Internet services from. This will have the opposite effect on the marketplace than what was demanded by the free market competitive wording found in the Telecommunications Act of 1996.

Furthermore, there is more than sufficient evidence to show that the phone companies' scare tactic claims of network overload are greatly exaggerated. "If the commission awards large new fees to (local phone companies) for access to the (local phone networks), there will be a significant risk that the only winners will be the phone companies while consumers and the entire Internet online industry will lose," Matthew Korn, America Online vice president, testified.

The FCC, overburdened by angry netizens, is working to spin the discussion away from access fees and toward technology so the public won't be offended by the fees when they are implemented later this year. Commissioner Susan Ness advised participants that "the discussion shouldn't only be about money, but should be focused on technology." By moving the discussion toward looking at ISDN for all consumers, for example, the FCC hopes to create a public perception that the access fees could be a "good thing."

THE FCC IS WAFFLING TO HELP THE PHONE COMPANIES

To date, the FCC has tentatively disagreed with the phone companies. Reported in this column, just two months ago, the FCC deemed that Internet and online services are not telecommunications services, and as such are not subject to the FCC's regulatory regiment.

The FCC's Federal-State Joint Board at that time, agreed that the Internet is an unregulated, non-governmental and self-administered network for global information exchange that "relies to a large degree on existing telecommunications carriers for the underlying transport facilities that constitute the Internet's backbone, as well as for local loop connections to individual Internet servers and users." It went on to explain the Internet is really only a set of industry standards or protocols that "run over the telecommunications infrastructure"—a means by which networks communicate—just as voice transmissions run over the telecommunications infrastructure to allow people to communicate. As such, it said none of the ISPs, e-mail, or information services should be subject to FCC or state telecommunications regulations.

But, as the telecommunications companies have continued to put on the pressure, the FCC has revised its stance. "The FCC's initial proposal is that ISPs should not be required to pay current access charges, but the Commission has made no final decisions," it now says.

"The Commission expressed concern about the effects that imposition of access charges could have on the competitive ISP marketplace, and also noted that the Internet would likely not have grown so rapidly in recent years if most users had been required to pay per-minute rates for Internet access." But, it seems to have now added that such a stance "could change" in the near future. The FCC plans to issue a Report and Order on reforming the interstate access charge system by May 1997. The deadline for comments was March 24; the deadline for reply comments (comments responding to the initial round of comments) is April 23.

ADVICE FOR THE MULTINATIONALS AND GOVERNMENTS

If telecommunications, broadcast and entertainment giants really understood the cyber-marketplace, they'd have a clearer idea that the Internet is not a "global city", but rather a "frontier town" at best. Frontier towns despise outside carpetbagging by disassociated empires. Frontier towns have no desire to implement politically acceptable laws; they have their own means to maintain law and order. It is not until frontier towns become major cities through extensive trade outside their region—that outside rules have any impact.

Governments need to take heed. History provides many lessons. The French, American and Bolshevik Revolutions; the Cade and Whiskey Rebellions; the Alamo; Vietnam—all show what happens when governments try to impose laws that run counter to the desires of the citizenry. I predict regulations on the Internet imposed without netizen support will face a similar outcome.

Rather than forcing worn-out ways of doing things on the cyberworld, multinationals and governments would do better to embrace the "pioneers" of the Information Age. This would best be accomplished through mutually-beneficial alliances with small and start-up Internet ventures—not through the threat of a destructive regulatory environment. As a strategist for major corporations for over two decades, it always seemed to me that the multinationals' strengths in linkage technologies, sophisticated marketing appeals, and network engineering expertise could lead to larger profits in cyberspace if they worked to enhance the efforts of small ISPs—who have a better "hands-on" cyber-experience in dealing with service problems on a face-to-face basis.

THE COST OF THE FIGHT

For example, what would make more sense? Should Bell Atlantic/Nynex start its own ISP service, request Public Utility Commission intervention to raise InterLATA access fees on existing small ISPs from $300/month to $18,000/month, inundate the FCC with lobbyists requesting revisions to "universal service" and "access fees" heavily taxing Internet providers as "common carriers," and effectively try to put the smaller competition out of business? Or, would it make more sense, if a company like Bell Atlantic/Nynex used the money it is paying lobbyists, the soft money it is spending on lining up politicians and regulators, and the start-up costs and headaches of developing and promoting its own ISP to develop a comprehensive alliance program with the smallest ISPs in its region—and use that as an effective buffer against its telecom competitors who are drooling over the prospects of the East Coast region? There are over 1,800 of these small ISPs—all providing Bell Atlantic with about 5,000 digital customers each. That is a lot of bandwidth that companies like AT&T would love to get their hands on.

Now, guess what tact Bell Atlantic/Nynex is pursuing? Yep, they are more concerned about putting the little guy out of business. But, in defense of Bell Atlantic, they are not acting alone. Like drones, they are just "benchmarking" their approaches to copy what all the others in their business are doing.

STRATEGIES FOR SURVIVAL: TIME TO ACT

Without responsible input from ISP owners and netizens at both the state and federal levels, the lobbyists, and pandering by the phone companies will win out in cyberspace over a more reasoned approach. The FCC has asked for responsible comments. It would like to know what you are thinking, because, in its words "the development of the Internet may raise issues beyond the scope of the access fee reform." The request for input is designed to help the FCC decide whether access fees may be needed to create incentives for the deployment of more efficient data services.

In submitting your comments, please be aware of the following:

1) You may file "formal" comments in writing, sending the written transcript to the FCC, 1919 M Street, Washington D.C. 20510. Be sure to include the Docket No. on the envelope and on each page of your transcript.

2) You may file informal comments by electronic mail by sending them to `isp@fcc.gov`. However, please note that "informal comments" does not mean "casual." It means "less formal than written comments," but there are still requirements for the format (e.g., putting the docket number in the subject line, providing a mailing address, etc.). Before filing comments, please review the information at `www.fcc.gov/isp.html`.

3) Deadline for these comments is March 24, 1997. Reply comments to these comments must be filed by April 23, 1997.

You should also send your comments to the White House and Congress, who after the May filing deadline of the FCC are expected to take up the discussion in committees that may write and adapt new access fee laws. It is a long battle, that gives the panderers the upper hand. Only broad public display of opposition will undermine their efforts. The time to act is now! ◆

For more information see:
`www.fcc.gov/isp.html`
`www.fcc.gov/access_fees.html`

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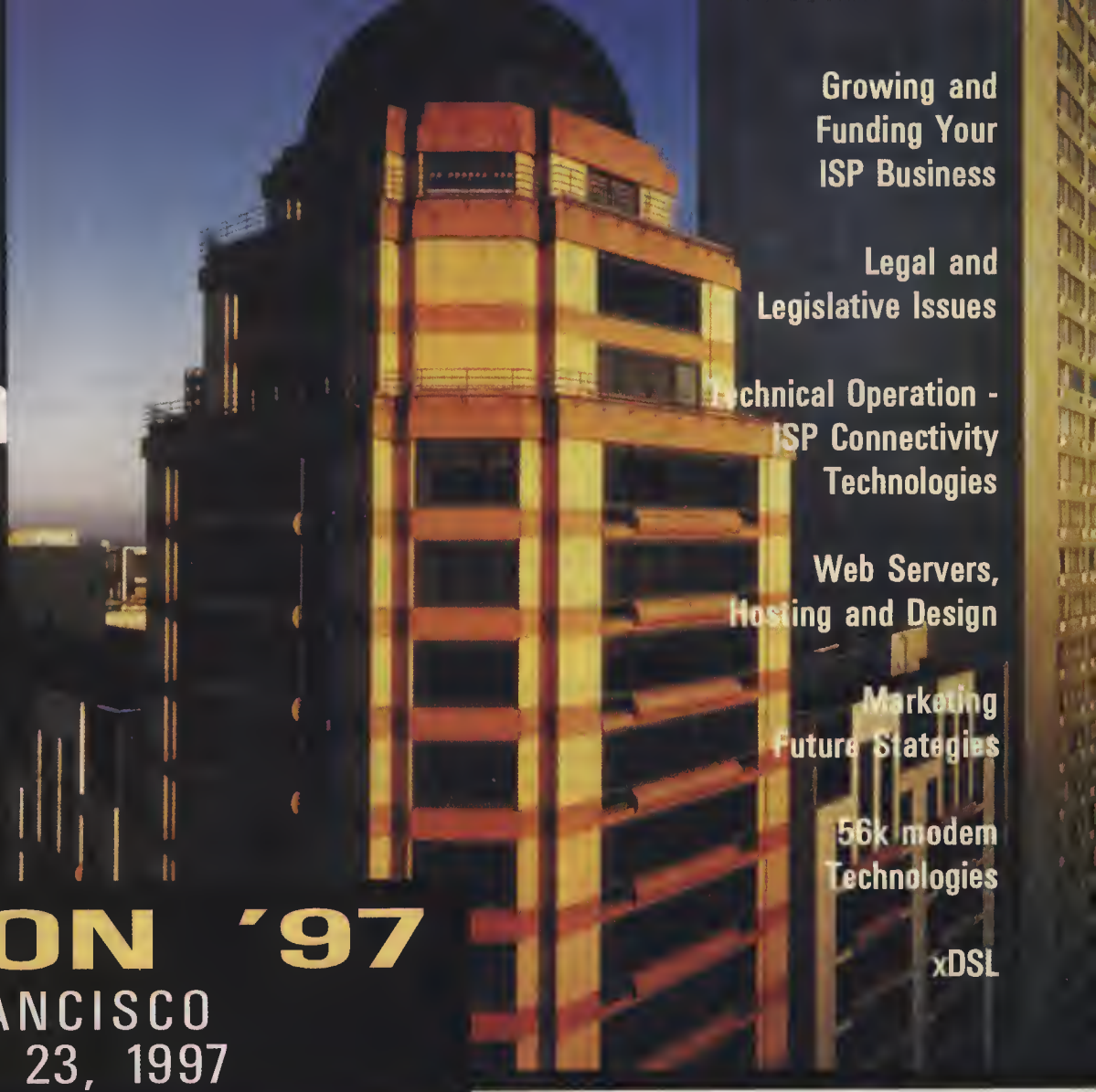

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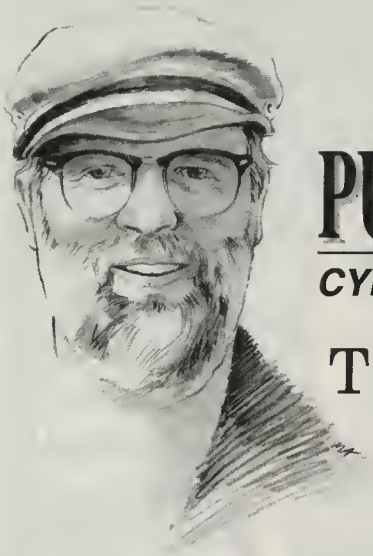


PUTTING THE NET TO WORK

by Durant Imboden

CYBERBOOZE

There was a time, not so many decades ago, when any young man who aspired to be a sophisticate felt compelled to learn the finer points of booze and bartending. Downy-cheeked frat rats expounded on the perfect Martini, while earnest young stockbrokers asked the Playboy Advisor to explain the difference between "whisky" and "whiskey" or the meaning of "bottled in bond."

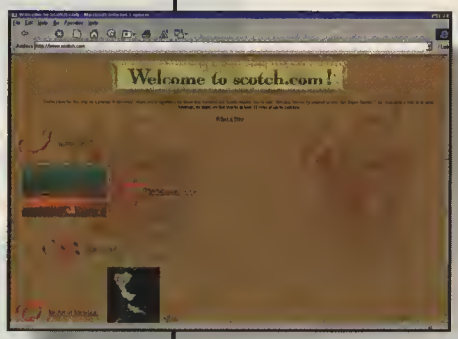
Durant Imboden is a freelance writer whose credentials include published novels and nonfiction, fiction editing and staff writing for ***Playboy***, travel writing for corporate clients, and representing authors at a New York literary agency. He currently manages the Writing Forum on The Microsoft Network and co-authors the "Flame Wars" column on Delphi, where he is an editorial consultant. Durant maintains a Web site for writers at `imboden@writing.org`

Such concerns fell by the wayside in the '60s and '70s as young men (and, yes, young women) abandoned the Cuba Libre and Johnny Walker Black Label for sweet fizzy wines and Acapulco Gold. Then came the Yuppie decade of the '80s, when patrons of BMW and The Sharper Image developed a taste for coke without the rum.

Still, as the proprietors of revolving restaurants are fond of saying, "What goes around comes around." Today, the Martini is once again a symbol of sophistication, and "brown goods" (as whiskies are called in the trade) are back in fashion. There is, however, one significant difference between today's young people and those of 30 years ago: The aspiring sophisticates of the late 1990s can bone up on booze via the Internet.

In this month's column, I'll introduce our younger readers to web resources that can help them learn about liquor without having to touch alcohol..

IMPORTANT: *You must be 21 or older to read the following text. If you are not of legal drinking age, close your eyes and turn the page right now!*



WHISK(E)Y

The British use the spelling "whisky." In America and Ireland, the preferred term is "whiskey." Either way, it's a beverage made by distilling alcohol from fermented barley, corn, wheat, or rye.

Scotch may be the oldest type of whisky, having been distilled for more than 500 years. It also has the most aristocratic image of any grain-based spirit, even if it does come from a nation of dour Presbyterians whose men wear skirts modeled after parochial-school uniforms. For a good introduction to Scotch whisky, look no further than ***Scotch.com***, at—you guessed it—**http://`scotch.com`**.

Scotch.com bears an award that identifies it as being among the top 5% of all web sites, which puts it in an elite group of perhaps 50,000 or 100,000 URLs. In any case, it does have a great deal of useful information—which shouldn't be surprising, since the site comes from the distributors of Johnny Walker, Dewar's, and Pinch. It's also endorsed by The Classic Malts Society and the editors of *Slàinte* (pronounced "SLAN-juh"), a magazine for aficionados of single-malt Scotch. Visit Scotch.com for illustrated descriptions of the fermenting and distillation process, a guide to several leading brands of blended and single-malt whiskies, and the chance to send a picture postcard to your Scotch-loving friends.

Speaking of Dewar's, that brand has its own ***Dewar's Desperately Need Your Help!*** site at. `www.dewars.co.uk` You won't learn much about drinking here, but you can win a prize by helping the company track down its eccentric (and missing) founder in an online game.

J&B Castle Tour (`www.j-b.com/castle/html/cwt-indx.html`) blends whiskey lore with a catchy interface. Memorize the glossary of distiller's terms so you can impress your friends with references to "wort," "coffey-still," and "marrying."

The ***Whisky Web*** is an independent site that no Scotch connoisseur ought to miss. Its collection of pages at `www.whiskyweb.com/maltfile` includes descriptions of Scotland's whisky-producing areas, an essay on "the art of nosing," and an elaborate e-form that lets you "search for your favorite dram" based on characteristics such as region, peatiness, sweetness, nose, and other characteristics.

If you'd rather put peat in your garden than on your palate, a classic American whiskey might be more to your taste. The good people of Lynchburg, Tennessee celebrate the ***Jack Daniel's Distillery*** "just down the road a click or two" at `www.jackdaniels.com`. Stop by Jack's place, and you can listen to .WAV or .AU files of whiskey being poured straight, on the rocks, or with a splash of branch water. A screen saver is yours for the asking. Still (or maybe I should say "distill"), the best feature is the line that says, "This site is best viewed with Jack Daniel's Old No. 7.0."

WHITE GOODS

What? You're not a whisky-drinker? Then visit ***Stoli Central 2.0***, the latest generation of the Russian vodka's online home at `www.stoli.com`.. The colored

type can be hard to read against the black background, but you'll learn all about Stolichnava Vodkas and sister products such as Bombay Gin, Metaxa, and the French pastis.

Another famous brand in the "white goods" category is ***Tanqueray***, a gin that has long enjoyed snob status with upscale Martini drinkers. The company's web site at `www.tanqueray.com` practically hypnotizes visitors with dancing ice cubes before providing entertainment in the form of "Tanqueray Escapades" of the click-and-see-hip-things-happen variety. Dig deep enough, and you'll happen upon a "Distillery Process" page in "The Vault" that explains the history and manufacture of aqua juniperi. (Did you know that distillation was invented in Salerno, Italy around AD 1100? I didn't.)

LATIN LIQUOR

Rum has been poured into North American stomachs and baked goods since the Colonial era. The pale or dark spirit, distilled from fermented sugar cane, has slipped in popularity during the last few decades. However, it remains an essential souvenir for anyone visiting the Caribbean.

The biggest rum site on the Web is ***Club Bacardi***. Its URL is `www.bacardi.com`. Cuba Libre and Mai Tai fans can use the "drink wizard" to assemble mixed drinks from ingredients on hand, play a mystery game in the Casino, or get lists of recommended bars in countries on five continents. Unfortunately, the site has very little information on the differences between various types of rum or how rum is made.

Tequila is another distilled beverage that gets short shrift on the Web. The ***Tequila Home Page*** (`www.io.com/~elvis`) includes a bit of history and technical information on the liquor ("copied without permission from The Bartender's Bible") and invites readers to submit their own "tequila stories and rituals."

For tequila information without copyright infringement, sample ***Tequila Centinela*** at `www.fine-tequila.com`.. The site's "history" page describes how pure tequila is made from juice of the agave plant. ***Cuervo Country*** (`www.cuervo.com/main.shtml`) has an "FATQ" (Frequently Asked Tequila Questions" file but devotes most of its pages to music, games, and other fripperies.

BRANDY

"Liquor is quicker, but brandy is handy." That's what the folks at Courvoisier might say if their Cognacs weren't priced too high for the mass market. The company's web site at `www.courvoisier.com` is educational if only because it includes a .WAV file that demonstrates how to pronounce "Courvoisier." (Hint: It's similar to "koowazhay.")

Besides the usual product information and drink recipes, the site includes restaurant listings from koowazhay's *Book of the Best* . Seventeen cities from around the world are included—presumably cities where local connoisseurs prefer Cognac to Wisconsin Willy's Peach Brandy.

Across the Alps, the Italians distill a brandy called *grappa* from wine grapes. The Seacove Group of Vancouver, B.C. has a brief but informative Grappa page at `www.settingsun.com/seacove/grappa.html` that describes the differences between types and brands.

LIQUEURS AND CORDIALS

After-dinner drinks haven't made significant inroads on the Web. Still, there are a few sites worth investigating.

The Grand Marnier Website, (`www.grand-mariner.com/us/frame.htm`) tells a little about the famous liqueurs that are made from Cognac and fermented orange peels.

Cointreau, Possoä, and Galliano are discussed briefly at ***Remy-Cointreau*** (`www.remy-cointreau.com/SpiritUs.htm`).

For a less obvious after-dinner drink, head south to ***Venezuela's Ponche Crema***, (`www.ve.net/ponche-crema`) which celebrates a cream liqueur invented in 1901 by a chemist and pharmacist, Don Eliodoro Gonzalez P., who "dedicated his life to exploring the world of liquor."

SAKE

This Japanese rice beverage is technically a wine, not a spirit, but it's so potent that I'm including it in the booze category. (Besides, I refuse to use the term "wine" for anything that isn't made from grapes.)

The ***Sake Home Page*** at `http://sake.com` is less than subtle in promoting a specific brand, Tamanohikari, but it includes detailed information on how sake is made and even on the rice used in first-rate sake. The page is worth reading before your next Tokyo expense-account outing. The traditional Japanese illustrations are another plus.

BARTENDING TIPS

If you're going to be a sophisticate, it isn't enough to know about booze—you also have to learn the basics of bartending. For example: Do you shake or stir a Martini? What glass goes with which drink? How do you muddle herbs? What's the difference between a Mint Julep (Southern Style) and a geographically neutral Mint Julep?

The ***ACATS InterNet Bar Pages***, (`www.epact.se/acats`) has the answers you need. It also includes a compendium of the "Best and worst pickup lines heard in a bar," such as "One way or another I'm going to make love to you tonight, but I'd rather you be there."

Another site, ***The Virtual Bar***, serves up recipes and mixology advice at `www.thevirtualbar.com`. The "Silly Little Bar Tricks" page describes ten feats of barroom magic that could make you the life of the party.

WHEN SOPHISTICATION FAILS

...and you're nothing but a wobbly and queasy drunk, there's just one place to go: ***hURL***(`http://realbeer.com/rbp/burps/rbp.vomit.html`), which offers a list of synonyms for vomiting. A "Burp me!" button leads to a freeware accessory for Windows 95. As a character named "Wyatt Burp" becomes progressively queasy, it's your job to relieve his distress by emptying your Recycle Bin. Sophisticated? Hardly—but it's no more callow than waiting months to have your liquor questions answered by the Playboy Advisor.◆

CUBAWEB – THE CUBAN GOVERNMENT'S OFFICIAL WEB SITE -- EXPANDS INTO 1997

by Vito Echevarria

In January 1996, Havana launched its web site *Cubaweb* (The National Web Site of the Republic of Cuba) (`www.cubaweb.cu`). This slick web site was originally designed by the Cuban government to promote foreign investment, as well as tourism—two important sources of income for post-Cold War Cuba.

Among the sections featured on the early Cubaweb was the Cuban newspaper *Granma International*. It also had links related to travel and tourism, science and technology, medicine, arts and treasures, and a trade directory for investing in Cuba. Cuban publications such as the Havana-based trade magazine *TIPS*, a Cuban e-mail listing, and a calendar of future events in the country were also linked to this site.

More than a year later, much has changed on Cubaweb. For one thing, portions of the old Cubaweb have been spun-off. *TIPS* (`www.tips.cu/tips.html`), the Cuban news agency Prensa Latina (`www.prensa-latina.org`), and the new web sites for the government-run hotel conglomerate Cubanacán (`www.cubanacan.cu`) are all descendants of the original Cubaweb.

While *TIPS* continues to serve its function in providing multilingual information on various trends in Cuba's economy, Prensa Latina is a rather new entry in Cubaweb. Prensa Latina delivers its daily news feed straight from Havana to subscribers via e-mail and the World Wide Web, covering Cuban and Latin American news. Subscription requests for Prensa Latina stories (**US$360**/year for individuals) and special reports (**US$125**/year) can be filled by Blythe Systems, 339 Lafayette Street, New York, NY 10012 USA.

Meanwhile, *Granma International* (`www.cubaweb.cu/granma`) is also growing. Its features are published in four languages (Spanish, English, French, and German). The front web page shows a photo of the José Martí Memorial in Havana, along with *Granma*'s address: Avenida General Suárez y Territorial, Plaza de la Revolución, Havana, Cuba (Apartado Postal 6260). E-mail: `edac@granmai.get.cma.net`

The paper highlights editions from the past nine months. Along with political news, *Granma's* January 1997 edition covers Cuba's expanding commercial sector—with news (for example) of French business interests competing for trade agreements in Cuba, Venezuela widening investments in Cuba's health sector, and the country rejoicing over the fact that it received over a million tourists and over **US$1.3 billion** in tourism-related earnings last year. In promoting the country's image to net surfers abroad, *Granma* also took the opportunity to announce the Pope's upcoming visit to Cuba in January 1998.

During a recent interview with the author, *Granma International's* Director, Gabriel Molina Franchossi, was simplistic in explaining Granma's presence on the web: "We are using the Internet as the best means to get the news to people (abroad). We are working to counter the manipulation of Cuba's image from the Miami Cubans."

Then, there's Cubanacán, which naturally uses a separate web site to market its numerous tourist packages—from tours of Havana's colonial section to its health tourism deals. The firm, which accounts for 48% of all tourists visiting Cuba (running 18 companies with nine branch offices in Europe and North America), must optimize use of its web site to compete with Spanish operations booming in Cuba, such as the Sol Melía hotel group.

Cubaweb and its spin-offs are set up and run by Canadian entrepreneur Robert Sajo, whose Havana-based firm Teledatos GET (Grupo Electrónica para el Turismo) and his Toronto, Canada company I.C.C. keep Cubaweb and other Cuba-based web sites operating. Sajo and his creation Cubaweb were featured last January in the Canadian Broadcasting Corp. (CBC) news magazine program *Venture* as part of a report on Canada's growing presence in Cuba.

Venture was apt in penning Sajo's operation as being a "Cuban silicon valley." In a recent interview from his facility in Havana, Sajo notes: "Cubaweb is on our server at Teledatos GET in Havana, but because we only have a 64K gateway, we are mirroring it from our server in Toronto, that is owned half by Teledatos and half by my Canadian company. Our line in Canada is a T-1 connection, but recently we had to install a new server to provide facilities to a better access to some of our high traffic sites with a second T-1 connection, this for clients of ours such as the publications of *Granma* and *TIPS*, or the tourist sites like Horizontes (hotel group), Cubanacán, or Cubana Airlines."

Teledatos' clients now have proper domain names for their web sites which are mirrored on the servers in Toronto. Sajo says that "We intend to keep them linked to our main site for the time being, but the one T-1 for Cubaweb could not support the traffic anymore, so we established new mirrors for these sites again from Toronto."

Cubans are also interested in cashing in on the trade convention business, which is an extension of Cuba's growing tourism trade. Thus, Cubaweb's Conventions, Trade Shows and Events section (`www.cubaweb.cu/buro`) has taken on more importance. Sajo wants to use this portion of the web site to help make Havana a leading convention center in Latin America, he notes that 380 conventions and conferences are planned in Cuba for this year, including the Havana 97-Cotal 97 Tourism Convention (Conference of Tourist Organizations of Latin America) in May 12-17 1997. (Contact information: Convention Bureau, Edif. Focsa, Calle H e/17 y 19, Vedado, Havana, Cuba. Tel.: **(53)(7) 31-3600** or **32-3516 (F) (53)(7) 33-4261**, e-mail: `buroconi@buroconv.mit.cma.net`)

However, the Canadian businessman is far more excited about another Havana-based convention: Informatica '98 for which Teledatos GET will be the commercial organizer. Sajo, in wanting to create Cuba's answer to the COMDEX technology trade show in America, plans to make Informatica '98 into a major international event, particularly for Latin America: "We want to be the jumping (technological) ground for these (Latin) countries."

According to Sajo, one of the newest and potentially most profitable portions of Cubaweb is the Cuban Music Catalog section, which actually has its own web site (`www.careebecons.com/musicweb/cubamusi.html`). Now, net surfers who are into Latin music can order various types of Cuban music (Salsa, Son, Cha Cha Cha, Conga, Danzón, Rumba, Jazz, Nueva Trova, Rock, etc.) via the World Wide Web. Consumers from all over the world can browse through and listen to Cuban music CDs from such artists and groups as Los Van Van, Irakere, La Original de Manzanillo, NG La Banda, and Isaac Delgado (who recently performed in New York).

Sajo has set up a system Internet consumers can use INTERNETSECURE (a payment system where secure on-line credit card transactions are made). Says Sajo: "Scotiabank of Canada and the Bank of Montreal developed credit card-clearing where the client clears his own credit card and the merchants (us) only get an approval number (transmitted through the Internet). INTERNETSECURE (a subsidiary of the two banks) developed this."

To insure prompt first class mail delivery to participating consumers, the CDs are shipped out of Canada. Sajo notes: "We are commercializing all Cuban music. CDs are made in Canada. We will take CDs physically from Canada to the U.S (for example), then ship it (including to American consumers)."

What makes this online service so relevant to Sajo is that (assuming the service is a success) he plans to have other Cuban and non-Cuban products available for sale online in the near future: "We will market not only Cuban products, but products from the Dominican Republic and elsewhere." Sajo has already thought of at least one prospective Cuban-made product line—aging prevention products for middle-aged and elderly men: "Cuba is a very big producer of biotech products. There are at least 50 such firms in Cuba. The market for men by the year 2000 will be a **US$5 billion** market. Cuba has the greatest expertise in aging prevention products. We can ship **US$100 million** in such products within the next two years."

Sajo mentions some of the business that Teledatos GET has already whipped up due to its mere presence in Cuba's transition from a Marxist economy to a mixed, more capitalistic one: "Journey's End hotel chain of Canada (had) signed a deal (in late 1996) with 11 Cuban hotels to take over their administration as of the first of January (1997). We (have set) up their international e-mail connections and Internet promotions. (Also, we have) started an on-line reservation system for Cubacar rental agency, with full on-line credit card international reservations. We are now working on a national hotel reservation system, fully integrated with tour operators worldwide. The clearing of deposits for these reservations shall be done on-line in real-time through my server in Canada and INTERNETSECURE." Naturally, Sajo's firm gets a cut of the profits generated from all these transactions (including the Cuban CD sales), and has the full blessing of the Cuban government. After all, the web site is stimulating worldwide interest in Cuba's tourism and commercial sectors.

In studying Cubaweb's server statistics for the week of January 19-26, 1997, the site received over 135,000 hits from net surfers worldwide, including:

24,121 hits from .com (commercial, mainly U.S.)
8,016 hits from .ca (Canada)
7,003 hits from .edu (U.S. educational institutes)
4,780 hits from .es (Spain)
3,679 hits from .it (Italy)
2,167 hits from .de (Germany)
1,924 hits from .br (Brazil)
1,697 hits from .org (non-profit making organizations)
1,444 hits from .mx (Mexico)
1,318 hits from .uk (United Kingdom)
1,153 hits from .fr (France)
744 hits from .ar (Argentina)
641 hits from .jp (Japan)
606 hits from .cl (Chile)
591 hits from .uy (Uruguay)
479 hits from .gov (U.S. government facilities)
355 hits from .au (Australia)
156 hits from .il (Israel)
108 hits from .ru (Russian Federation)
102 hits from .mil (U.S. military facilities)

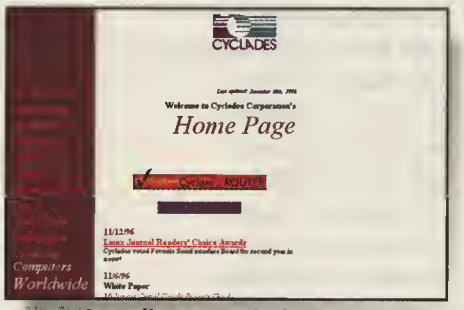
Many of these and other hits from elsewhere were not only directed at Cubaweb's main section, but toward the *Granma*, upcoming events, and tourism sections as well. Sajo, who mused over the hits from American military and government facilities, says: "for the complete (Cubaweb) we are now reaching 1 million hits per month. It is becoming very popular in the U.S. We are receiving thousands of e-mail daily from the U.S. as support for our information site. Since (November-December 1996) we have even received anonymous money donations from the U.S. to make sure that our site continues to develop with technology."◆

http://www.shiva.com/isp/bwatch.html
Shiva Corporation, Bedford, MA. Winner of the 1996 Data Communications Tester's Choice Award, Shiva's LanRover Access Switch brings proven Shiva remote access technology to Internet Service Providers. With over 200 MIPS of multiprocessing power, the LanRover Access Switch has a switching architecture designed to support over 100 concurrent users.

http://www.national-isp.com
National ISP Consultants: Give your users dial-up Internet access through 180 POPs. Turnkey 24/7 tech support, mail, news, & web hosting available. Start-ups welcome. **888-366-6477** or **203-596-2702**

http://www.cyclades.com
Cyclades Corporation: Designs, manufactures and markets connectivity products: Multiport serial cards, routers, communication adapters and remote access servers. Cyclades supports UNIX and Linux, Window NT/Win95, BSD-derived markets, SCO, DOS, and Fossil for most of our products.

http://www.netrix.com
Netrix: We manufacture and market products to build cost-effective data, voice, and image networks for international communications. Corporations and governments use our technology to upgrade communications networks, reduce costs, and improve productivity and competitiveness of their organizations.



http://www.cyclades.com
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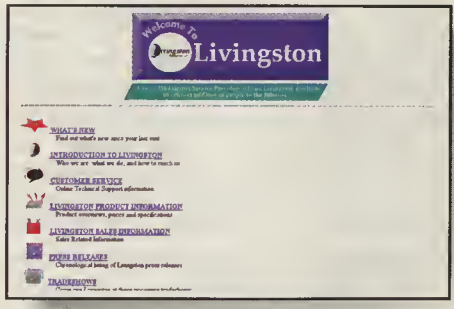
http://www.ividconsult.com
Interactive Video Consultants: Adult website and BBS operators: Profit from selling our live interactive videoconferencing service or start your own service. **888-801-VIDEO (8433)** or **203-596-2490**



http://www.livingston.com
Livingston: Over 1,500 Internet Service Providers rely on Livingston products to connect millions of people to the Internet.

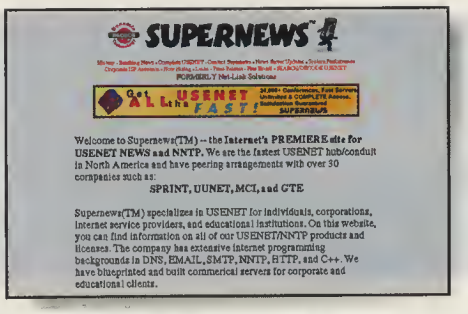
http://www.discpress.com/ispinfo
DiscPress: ISPs, distribute Netscape or MSIE on CD-ROM for only $0.75 per disc. Services tailored to the unique needs of ISPs. **888-311-disc (3472)** or **203-759-0574**

http://www.esoft.com
eSoft, Inc: We got our start 14 years ago with TBBS. Now the The Internet Protocol Adapter, or IPAD, is our primary product. The IPAD lets you build a full-function Internet presence without specialized expertise.

http://www.computone.com
Computone Corporation: Computone provides the fastest (921.6K!) and lowest cost per port remote access server (IntelliServer ***Power Rack***) to Internet Service Providers around the world. And now, the fastest ISDN modem (921.6K!)-introducing the NEW ***PowerSurfer!*** Call for details **(800) 241-3986 or (770) 475-2725**

http://www.ascend.com/isp

Ascend Communications With an installed base of 2.2 million ports, Ascend provides more ISPs with dial-in access servers than any other vendor. Ascend's scalable products let ISPs cost-effectively grow their POPs and offer subscribers Ascend's award-winning ISDN/Frame Relay Internet Access Devices. Ascend's products deliver end-to-end solutions for integrated firewall security, telecommuting, Intranets and VPNs.



http://www.supernews.com

Supernews specializes in USENET for individuals and corporate accounts. Users can access all USENET without any usenet hardware for $100/mo — call 1-800-795-2020.

http://www.ariel.com/b.html

Ariel: Ariel provides high-density modems for ISPs putting 24 v.34 modems in a single slot. Ariel also provides fast-train modems for transaction processing, and has ADSL systems

http://www.gtek.com

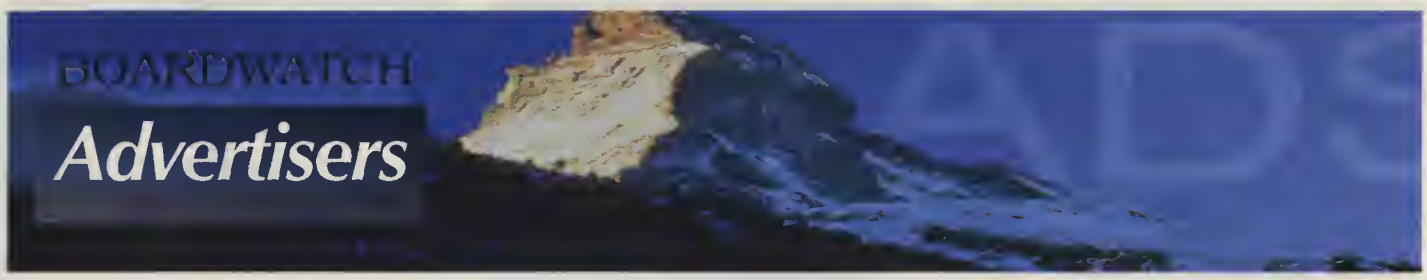
GTEK is the leading manufacturer of High Speed Multiport Serial Boards. Our cards are used worldwide in Bulletin Boards and data acquisition systems. We have been in business for over 13 years providing quality products to our customers worldwide.

http://www.bsdi.com

Berkeley Software Design: The most complete Internet server software includes Netscape FastTrack Web server, Apache Web server, News Server, mail server, FTP Server and more. Over 2,500 ISPs worldwide and Fortune 500 companies rely on BSDI for top web and Internet/Intranet power and stability. No additional OS to buy. Installs in minutes and features GUI configuration manager.

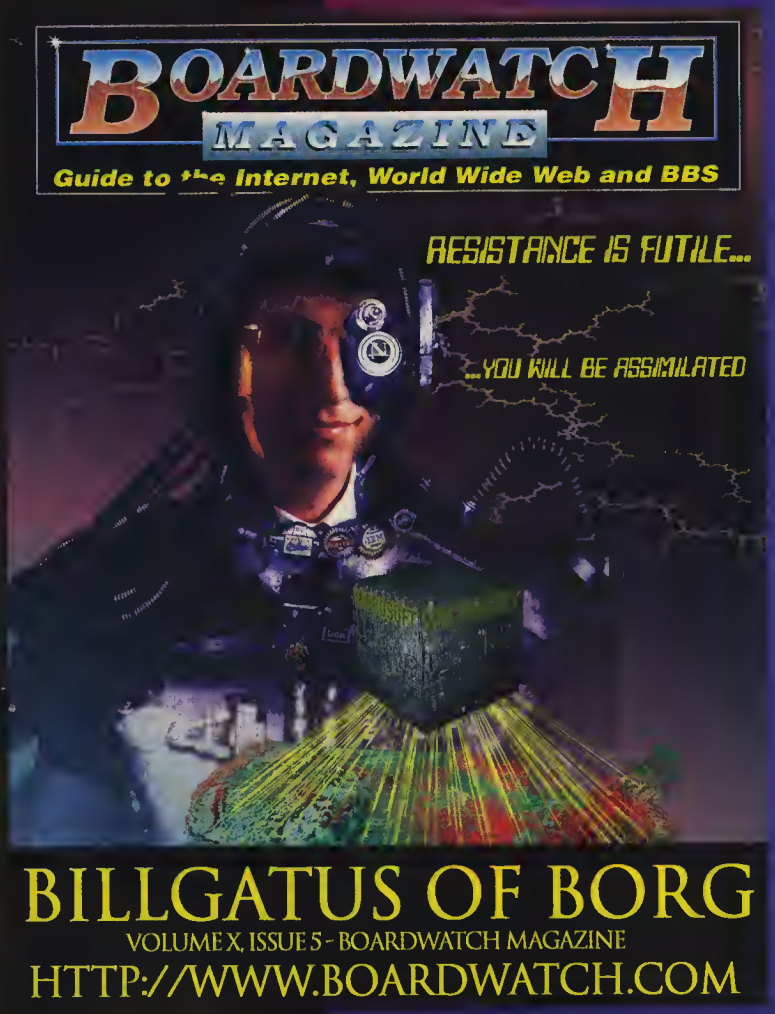
http://www.agis.net

AGIS: Get AGIS and get connected! AGIS is a leading Internet backbone services provider specializing in dedicated high bandwidth connectivity to the Internet backbone for Internet service providers, content providers, and large corporations. Visit our web page for details on how your company can get connected to the AGIS high speed backbone!



It's HERE

24X32 inch wall poster



By popular demand - our May 1996 BILLGATUS OF BORG cover is now available in giant life-sized 24x32 inch wall poster. Hang BILLGATUS OF BORG on your wall for just $19.95 plus $4 s&h

DON'T BE ASSIMILATED

Since publication of our May 1996 issue we've received hundreds of e-mail requests for a poster-sized blowup of BILLGATUS OF BORG. We give up. Here it is. Printed on high quality 100 lb. poster stock in a 24x32 inch size - the resolution and color will just knock you down. Hang this on your wall, and we guarantee that if you're in software business you'll get a chill down your spine every time you walk past it - or your money back. Are his eye(s) really following you - watching as you work?

Excellent motivational tool for software development teams, marketers, and others who need to be reminded daily or hourly that they are just a step away from assimilation.

LIMITED EDITION. We still don't believe anyone would actually want one of these. So we've printed a scant 500 and when they're gone, they're gone for good.

DON'T BE ASSIMILATED

ALSO AVAILABLE - BILLGATUS OF BORG FORMAL T-SHIRTS

Meet girls! Receive numerous offers of free pizza. Wear this classy T-shirt to an evening at the opera or just wining or dining about town. Very formal and very chic. This shirt just screams GEEK from every thread. Billgatus of Borg peers out at the world from YOUR chest OR from the chest of that special someone. Size XL only.

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BillGatus of Borg Formal T-Shirt

DVORAK ONLINE

by John C. Dvorak

ISPs SUED BY THE S.P.A. FOR UNPROVEN CRIMES

There are some things that are bad about our judicial system and nothing is worse than its inability to prevent people from using it to harass others with lawsuits designed to do nothing more than intimidate and cow people who cannot afford to defend themselves. This is particularly onerous when a large organization with its own selfish agenda threatens the future of progress of our ongoing communications revolution. This was the case the with Software Publishers Association (SPA) who on the behest of Traveling Software, Adobe Systems and Claris filed suit against a number of small ISPs and threatened to sue all ISPs if they didn't do what the SPA wanted.

It began with a form letter the SPA sent out to numerous ISPs with the claim that they were storing bootleg programs on their servers. It was first alleged that certain web sites on the ISP web farms were pirates and the ISPs were somehow liable. Curiously not one shred of evidence could be produced to verify this claim. The lawyers were never shown any evidence. No evidence could be produced for the court. *MSNBC's the Site* asked to see some verification of this "repeatedly." The reporters never received anything. Mike Godwin writing in *Internet World* believed there never was any evidence and the whole stunt was done by the SPA simply to intimidate ISPs into signing a document called the *ISP Code of Conduct*. I believe this began as a publicity stunt that got out of hand. The SPA has been losing status and authority and members. Large software counterfeiting rings are busted by government agencies nowadays and the SPA acts as little more than a vigilante organization saying there is piracy where none exists. It's a rationale for continued existence. In fact the organization does little more than harass carefully selected targets. This suit was its Internet strategy. The carefully selected targets were small ISPs that lacked the resources to fight any nuisance suit. The plan was to get them to agree to roll over and agree to whatever the SPA demanded. In this case it was to sign a very dubious Code of Conduct document. Once all the ISPs were signed up the SPA would boast about another great victory over piracy. Press Releases would fly and the SPA would look like it's on top of the world. Unfortunately too many ISPs told the SPA to take a hike. I know of none that signed the original Code of Conduct.

If anyone at the SPA had a clue in the first place, they would not have developed a Code of Conduct that essentially makes it impossible for an ISP to do business. Obvious the SPA Internet strategy did not include actually knowing anything about the Internet or how it works. The following is the SPA Draft of the Code of Conduct dated January 30, 1997.

SPA's Draft of "ISP Code of Conduct"

Commit to a policy of making only legally authorized software available to subscribers, members and users.

Implement its policy by appointing a compliance officer and using its best efforts to ensure -

(a) that the unauthorized reproduction and/or distribution of copyrighted computer programs does not occur on or from its server(s).

(b) that serial numbers, cracker utilities or any other information that is similarly designed to be used to circumvent manufacturer-installed copy-protect devices in computer programs (hereinafter "cracker information") will not be posted on its server(s).

(c) that the linking of one or more sites on its server(s) to one or more other sites that contain pirated computer programs and/or cracker information does not take place.

Remove infringing software or otherwise block access to it as soon as practicable after it is discovered, and insert in its place either a notice stating why the material has been removed or a link to another site which contains such a notice.

Educate subscribers, members and other users of their legal obligation to respect copyright through, among other things, public service messages, warnings and hypertext links to appropriate educational web pages.

Terminate subscribers or members who fail or refuse to abide by the policy of making only legally authorized software available on its servers(s).

Not knowingly to sponsor, endorse or advertise access to infringing software.

I don't want to go into a line by line critique of this poorly structured document but let me just point out a couple of ludicrous requirements including a violation of copyright law itself. Since it is not against the law to publish a cracker document or for cracker clubs to

In addition to his weekly syndicated radio call-in show, *Software/Hardtalk*, syndicated newspaper columns, magazine writing for ***MacUser***, ***PC Computing***, ***DEC Professional***, ***Information Technology***, and his featured "*Inside Track*" column in ***PC Magazine***, Dvorak is the author of several best-selling books, including ***Dvorak's Inside Track to DOS & PC Performance***, ***Dvorak's Guide to PC Telecommunications***, and ***Dvorak's Inside Track to the Mac***. John can be reached at dvorak@aol.com

exist, how can you take a link and alter it "to link to another site which contains such a notice" without altering the copyrighted HTML code and thus violating copyright by republishing altered material? This is very questionable. But more along the lines of idiotic is the notion that an ISP can monitor all links. I'm convinced much of the rationale for this suit was so the SPA would garner free links to its site aka "hyperlinks to appropriate educational web pages." But unlike those of us who ask for links, the SPA decided to threaten everyone in sight with a lawsuit in an attempt to get their site linked.

Mike Godwin outlines in sickening detail the ludicrous case brought against Community ConneXion in the February 1997 *Internet World* (`www.iworld.com`). I advise you all to read this excellent feature story.

I obtained from *MSNBC's The Site* the original note sent to one of the ISPs actually sued—Tripod. This letter, which put Tripod on notice, was not even sent to a person. It was e-mailed to `letters@tripod.com` on September 6, 1996 and gave the company four days (over a weekend) to comply with a series of SPA demands for, among other things, FTP logs. After accusing Tripod of piracy (and never producing one shred of evidence) they didn't even have a name of a company officer and sent the e-mail into the common letter bin expecting someone to jump to action. This, to me, is unbelievable.

The worst aspect to this pathetic tale is that the SPA continues to bad-mouth the one ISP that fought it in court and refused any settlement—Community ConneXion. The SPA, according to sources, says it may sue them again, with or without evidence. The SPA has all the big software companies bankrolling this abuse of the system. They should all be ashamed of themselves for supporting this activity. The ISPs who settled with the SPA all did so on advice of counsel. It was cheaper to sign an agreement to monitor for piracy as best they could (a far cry from the code of conduct) and claim cooperation than spend upwards of $100,000 fighting them. This kind of thing has got to stop.

There is an interesting aspect to this which is the potential for both a defamation of character suit and an abuse of process suit that could be leveled at the SPA if someone wanted to spend about $500,000 to do it. According to Terry Gross, the attorney for Community ConneXion, the SPA although it dropped the case and said officially that it would not go any further has been telling reporters and others that it may go after Community ConneXion anyway. Essentially the SPA keeps accusing this one ISP (who fought them) of criminality. One of these days someone is going to sue the SPA out of business and I suspect that if it was Community ConneXion they'd also go after Adobe, Claris and Traveling Software as co-defendants. Explain that to the shareholders. While the SPA may not have a lot of instant money it's financed and officially run by a lot of companies with deep pockets. If the SPA persists in calling law-abiding organizations "criminals" without any proof whatsoever, the potential is there for one whopping big lawsuit. If you read the Godwin article you'll see its arrogance carefully dissected. I can only imagine what a jury would award someone after the deceitful story unfolded.

This situation may have blown over, but I'd advise the software companies that are tacitly supporting this kind of unjustifiable witch hunt to rethink their positions and reconsider their associations with the SPA. This organization needs to be disbanded. ◆

Dvorak's Recipe Nook

RECIPE FOR WOODCOCK

After running the oddball recipe for squirrel I received a number of recipes for odd animals. Justin Cutler sent in this recipe for Woodcocks or doves. It came from *Le Livre de Cuisine des Acadiens*. I think it could easily be adopted for pigeons, squab or chicken. The French eat most birds.

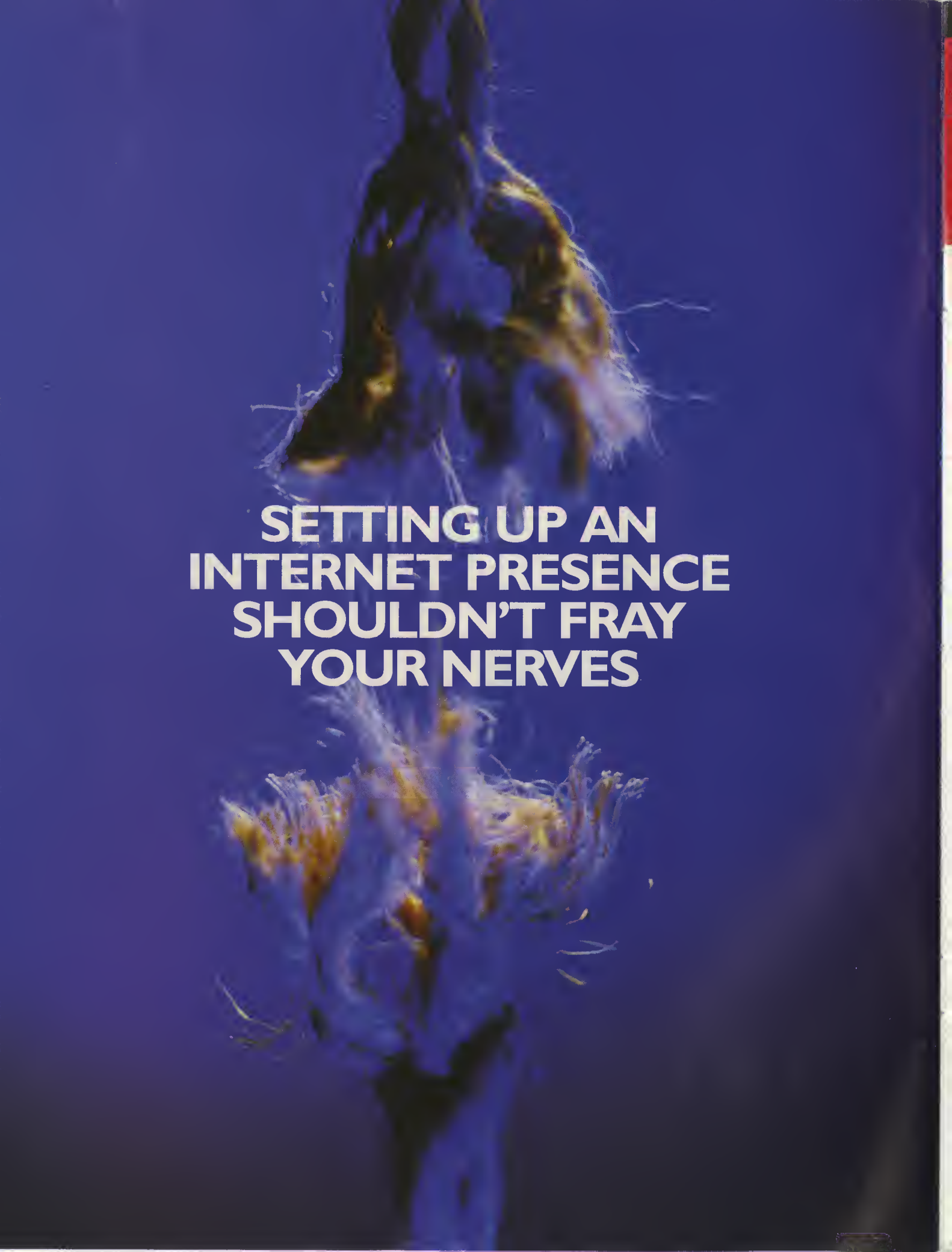
Ingredients:

24 woodcocks (doves may be used),
Garlic powder, salt, red wine vinegar and olive oil in equal amounts
Black pepper

Make a paste of all ingredients and coat woodcocks inside and out. Marinate in refrigerator overnight.

Flour
1 bunch green onions
1 cup olive oil
1 cup chopped parsley
2 large onions
3 cups chicken broth
1 medium bell pepper
1 pound smoked sausage, browned
3 cloves garlic
1 cup red wine
3 ribs celery
2 cups thinly sliced mushrooms

Remove woodcock from marinade and pat dry. Flour lightly and brown well in olive oil. While birds are browning, chop finely all vegetables. Remove birds and sauté vegetables over medium-low heat for approximately 10-15 minutes. To vegetables, add broth and wine. Replace birds in Dutch oven, breast down and simmer slowly approximately 2 hours or until done. About 30 minutes before birds are done, add mushrooms and sliced smoked sausage which has been browned. (These additions make a delicious gravy.) correct seasoning to taste. Serves 8-10.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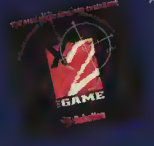

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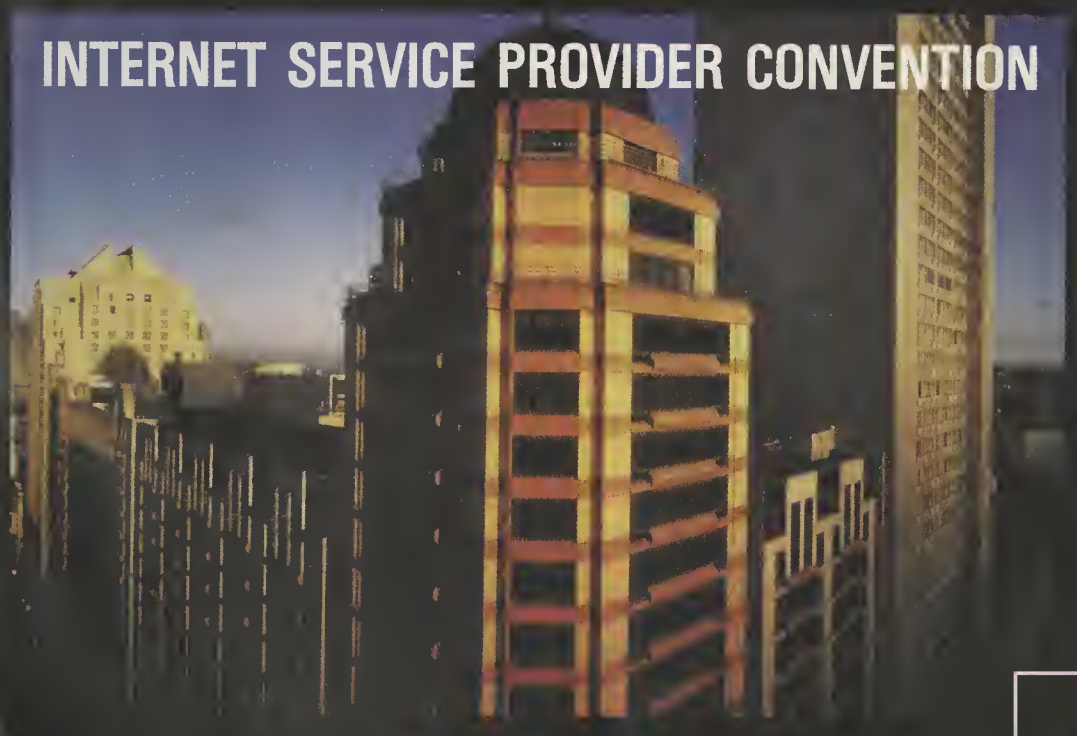

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Jack Rickard
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